0218-01255

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF ARIZONA
PHOENIX DIVISION

UNITED STATES OF AMERICA, and STATE OF ARIZONA, Plaintiffs, v. MOTOROLA INC., SIEMENS CORPORATION, THE SALT RIVER VALLEY WATER USERS' ASSOCIATION, and SMITHKLINE BEECHAM CORPORATION, Defendants, and CITY OF SCOTTSDALE, Rule 19 Party.	CIVIL ACTION NO. CONSENT DECREE

CV 91-1835-PHX-SMM

RICHARD B. STEWART
Assistant Attorney General
Environment and Natural Resources Division
LESLIE ALLEN
Environmental Enforcement Section
Environment and Natural Resources Division
United States Department of Justice
P.O. Box 7611
Ben Franklin Station
Washington, D.C. 20530
Telephone: (202) 514-4114

LINDA A. AKERS
United States Attorney
District of Arizona
JAMES P. LOSS
Chief, Civil Section
4000 U.S. Courthouse
230 N. First Avenue
Phoenix, Arizona 85025
Telephone: (602) 379-3011

Attorneys for Plaintiff United States of America

GRANT WOODS
Arizona Attorney General
LINDA J. POLLOCK
Assistant Attorney General
Office of Attorney General
Civil Division
1275 W. Washington
Phoenix, Arizona 85007
Telephone: (602) 542-1610

BARBARA A. MARKHAM
Chief Counsel
HOWARD R. KOPP
Deputy Counsel
Legal Division
Arizona Department of Water Resources
15 South 15th Avenue
Phoenix, Arizona 85007
Telephone: (602) 542-1529
Attorneys for the State of Arizona

TABLE OF CONTENTS

RECITALS

WHEREAS, the United States of America ("United States"), on behalf of the Administrator of the United States Environmental Protection Agency ("EPA"), and the State of Arizona ("State") have filed a Complaint in this matter pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), 42 U.S.C. §§ 9601-9675, to compel the Defendants to perform remedial actions and to recover response costs that will be incurred by the United States and the State in response to releases and threatened releases of hazardous substances from a facility known as the Indian Bend Wash Site located at Scottsdale, Arizona;

WHEREAS, in 1983, EPA listed an area including the Site on the National Priorities List ("NPL") for appropriate response actions pursuant to CERCLA;

WHEREAS, all Parties hereto agree that settlement of this matter and entry of this Consent Decree (hereinafter "Decree" or "Consent Decree") is made in good faith in an effort to avoid further expensive and protracted litigation, without any admission as to liability for any purpose;

WHEREAS, pursuant to Sections 121 and 122 of CERCLA, 42 U.S.C. §§ 9621 and 9622, the Parties hereto have each stipulated and agreed to the making and entry of this Consent Decree prior to the taking of any testimony;

WHEREAS, each undersigned representative of the Parties to the Consent Decree certifies that he or she is fully authorized to enter into the terms and conditions of this Decree and to execute and legally bind such Party to this document; NOW THEREFORE, it is ORDERED, ADJUDGED, AND DECREED as follows:

I. DEFINITIONS

The following terms used in this Consent Decree are defined as follows:

1. "CERCLA" means the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. § 9601 et seq., as amended by the Superfund Amendments and Reauthorization Act of 1986, Pub. L. No. 99-499 (1986).

2. "City" means the City of Scottsdale.

3. "Environment" has the meaning provided by Section 101(8) of CERCLA, 42 U.S.C. § 9601(8).

4. "EPA" means the United States Environmental Protection Agency.

5. "Ground Water Monitoring Program" means the program described in Subsection VII.B.1.

6. "Ground Water Extraction System" means the system described in Subsection VII.B.2.

7. "Hazardous substances" means any substance included in the definition of Section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

8. "National Contingency Plan" or "NCP" means the National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. Part 300, promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605.

9. "Operable Unit" ("OU") means that portion of the overall remedy for the Site that is encompassed by the 1988 ROD and further defined by Section VII (Work to be Performed) of this Consent Decree.

10. "Oversight Costs" means the costs incurred by the United States and the State and their contractors after the effective date of this Consent Decree for review, inspection, analysis and verification of the performance of the Work as required under the terms of this Consent Decree, to the extent such costs are not inconsistent with the NCP.

11. The "Participating Companies" are Motorola Inc., Siemens Corporation (for itself and its predecessor, Dickson Electronics, Inc.), and SmithKline Beecham Corporation (for itself and Beckman Instruments, Inc.).

12. The "Participating Group" consists of the Participating Companies and the Salt River Valley Water Users' Association (for itself and the Salt River Project Agricultural Improvement and Power District).

13. The "Parties" are the entities described in Section III.

14. The "Plant" means the Ground Water Treatment Plant described in Subsection VII.B.3.

15. "1988 Record of Decision" ("1988 ROD") means the Record of Decision for the Scottsdale Ground Water Operable Unit for the Site issued by the Regional Administrator of EPA Region IX on September 21, 1988, attached hereto as Appendix A.

16. "Release" has the meaning provided by Section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

17. "Response Costs" means all costs incurred or to be incurred by EPA or the State in response to releases or threatened releases of hazardous substances at or from the IBW Site that are not inconsistent with the NCP.

18. "State" means the Arizona Department of Water Resources and the Arizona Department of Environmental Quality.

19. "Site" means the northern portion of the Indian Bend Wash ("IBW") National Priorities List site, bounded by Chapparal Road, Pima Road, Scottsdale Road and McKellips Road, including the aquifers designated as the Lower Alluvial Unit ("LAU") and Middle Alluvial Unit ("MAU"). The Site does not include the portion of the IBW site that is south of McKellips Road. This Consent Decree does not address the portion of the IBW site that is south of McKellips Road.

20. "United States" shall mean the United States of America and any agencies thereof, including the Environmental Protection Agency.

21. "Work" means the installation and operation of the Ground Water Monitoring Program; design, construction, operation and maintenance of a Ground Water Extraction System and Ground

Water Treatment Plant; preparation of the Supplemental Study described in Subsection VII.B.4 and all other tasks to be performed by the Participating Group or the City pursuant to Section VII of this Consent Decree, as may be further delineated pursuant to the provisions of this Consent Decree, and any schedules or plans required to be submitted.

22. The "Zone of Ground Water Contamination" means the area of ground water in the MAU and LAU that has been contaminated as the result of Releases at the Site and which is contaminated at levels that exceed the treatment criteria set forth in Subsection XX.B of this Consent Decree.

II. JURISDICTION

The Court has jurisdiction over the subject matter of this action and over the Parties to this Consent Decree pursuant to Sections 106, 107, 113, 121 and 122 of CERCLA, 42 U.S.C. §§ 9606, 9607, 9613, 9621 and 9622, and 28 U.S.C. §§ 1331, 1345, and 1651(a). The Parties shall not challenge the Court's jurisdiction to enter and enforce this Consent Decree. The Participating Group and the City agree to accept service of a summons and complaint in this action by regular mail and to submit themselves to the jurisdiction of this Court.

III. PARTIES

The Parties to this Consent Decree are: (1) Plaintiffs, the United States of America, on behalf of EPA, and the State; (2) Rule 19 Party, the City; and (3) Defendants:

1. Motorola Inc.;

2. Siemens Corporation (for itself and its predecessor, Dickson Electronics, Inc.);

3. The Salt River Valley Water Users' Association (for itself and the Salt River Project Agricultural Improvement and Power District) (hereinafter referred to as "SRP"); and

4. SmithKline Beecham Corporation (for itself and Beckman Instruments, Inc.).

IV. BINDING EFFECT

A. This Consent Decree shall apply to and be binding upon the United States, the State, the City and the other Parties and their successors and assigns. No change in ownership or corporate or partnership status shall in any way alter any member of the Participating Group's responsibilities under this Consent Decree. Notice of this Consent Decree and the obligations contained herein shall be provided to any successors and assigns.

B. The Participating Companies shall be jointly and severally responsible and shall remain responsible for carrying out only those activities required of them under this Consent Decree. SRP shall be responsible and shall remain responsible for carrying out only those activities required of it under this Consent Decree.

C. The Participating Group shall provide a copy of this Consent Decree, as entered by the Court, and shall provide

all relevant additions to the Consent Decree, as appropriate, to each person, including all contractors, retained to perform the Work contemplated by this Consent Decree, and shall condition any contract for the Work on compliance with this Consent Decree. Notwithstanding its compliance with this provision, the Participating Group shall be liable for any violation of Consent Decree requirements committed by its contractors, unless otherwise excused by the terms of this Decree or by the Party responsible for enforcing such requirement.

V. PURPOSE

A. The purpose of this Consent Decree is to serve the public interest by protecting the public health, welfare, and the environment from releases and threatened releases of hazardous substances at the Site by implementation of the Work. The Parties recognize that the Work may, or may not, constitute the final remedy for the MAU and LAU at the Site, depending upon the conclusions reached by EPA following completion of the Supplemental Study described in Subsection VII.B.4. The Parties also recognize that EPA intends to issue an RI/FS and ROD to address the upper alluvial unit (UAU) and soils at the Site.

B. The Work is intended to implement the 1988 ROD by controlling the migration of contaminants and by reducing ground water contamination levels within the Zone of Ground Water Contamination, in accordance with Section XX (Treatment Criteria) and, to the extent consistent with the NCP, by providing potable

water to the City. Notwithstanding the foregoing, the Parties expressly acknowledge that no determination has been made by EPA that the Participating Group is obligated under CERCLA to satisfy the City's potable water needs in excess of 8400 gpm.

C. The Parties agree and the Court hereby determines that the Work set forth in this Consent Decree implements the 1988 ROD and as such is consistent with the NCP.

VI. OBLIGATIONS FOR THE WORK

A. The Participating Group shall implement and complete the Work in accordance with the NCP and all amendments thereto that are effective and applicable to any activity undertaken pursuant to this Consent Decree, and also in accordance with the standards, specifications, and schedules of completion set forth in, or approved by EPA pursuant to, this Consent Decree.

B. Notwithstanding any approvals related to this Consent Decree, permits, or other permissions which may be granted by the United States or any other governmental entity, the Parties acknowledge and agree that such approvals or permissions do not constitute a warranty by the United States or the State that the Work performed pursuant to this Consent Decree will achieve the treatment goals and objectives of the 1988 ROD and this Consent Decree.

C. Takeover of Work

1. In the event EPA determines that any Party has failed to perform any substantial portion of the Work as required by this Consent Decree or that the timely completion of any substantial portion of the Work is in jeopardy for reasons not deemed force majeure under Section XXIV, EPA may decide to take over and perform such portions of the Work. Except where necessary to address an imminent and substantial endangerment to human health or the environment, EPA will provide all Parties with 60 days written advance notice of its intent to do so. If any Party disagrees with the EPA's determination, such Party may, within 10 days of receipt of the notice, invoke the dispute resolution provisions of Section XXV of this Decree.

2. No Party shall be liable for any penalties for failure to complete such portion of the Work that is taken over by EPA, except as provided in Subsection VI.C.3.

3. If EPA takes over performance of the Work pursuant to this Subsection VI.C, the Party(ies) responsible for performing such Work shall pay to EPA a Takeover of Work penalty equal to the lesser of one million dollars or two times the Response Costs incurred in performance of all such Work. Such penalty shall be paid in accordance with Subsection VI.C.6.

4. If the Party(ies) responsible for performing such Work invokes dispute resolution and if the result of the dispute resolution is a determination that EPA properly took over performance of the Work, the Party(ies) responsible for

performing such Work shall pay the Takeover of Work penalty, plus interest at the rate specified in 42 U.S.C. § 9607 at the conclusion of dispute resolution. If the dispute resolution process determines that the Party(ies) responsible for performing such Work had not failed to perform a substantial portion of the Work as required by this Consent Decree, the Party(ies) responsible for performing such Work shall pay no Takeover of Work Penalty and may resume performance of the Work.

5. By invoking dispute resolution, the Party(ies) responsible for performing such Work may contest whether EPA properly determined that the requirements of this Section for EPA Takeover of Work were satisfied and what, if any, takeover penalties are due; provided, however, that invoking dispute resolution does not stay EPA's right to perform the Work. If, prior to performance of the Work, EPA determines that its concerns will be resolved satisfactorily, EPA shall withdraw its advance notice of intent to perform a portion or all of the Work, and the Party(ies) responsible for performing the Work shall resume performance of such Work.

6. The Takeover of Work Penalty shall be in addition to reimbursement to EPA for all Response Costs incurred as a result of EPA's Takeover of Work. If EPA performs Work pursuant to this Section, the Party(ies) responsible for performing the Work shall reimburse EPA for Response Costs incurred in performing such Work and any applicable Takeover of Work penalty within 60 calendar days of receipt of demand for

payment of such costs. Any demand for payment of Response Costs or the Takeover of Work Penalty made by EPA pursuant to this Section shall include cost documentation that verifies that the claimed costs were incurred and that the amount of the demand was properly calculated. EPA may demand payment for Response Costs under this Section any time after costs are incurred by EPA in accordance with this Section.

D. SRP and the City shall put all treated ground water to beneficial use.

VII. WORK TO BE PERFORMED

A. Except as provided in this Section, the Participating Group shall implement and complete the Work. All Work shall be performed in accordance with the NCP and all amendments thereto that are effective and applicable to any activity undertaken pursuant to the Consent Decree, and also in accordance with the standards, specifications, and schedules of completion set forth in, or approved by EPA pursuant to, this Consent Decree. All Work shall be performed by qualified employees or contractors.

B. Requirements for Work by the Participating Group

1. Ground Water Monitoring Program

a. i. The Participating Group has designed and installed monitoring wells as specified in Appendix B, Part A. The Participating Group shall operate and maintain a Ground Water Monitoring Program as specified in Appendix B,

Part B. Based on the data generated by the Ground Water Monitoring Program, the Participating Group shall identify a Zone of Ground Water Contamination and monitor the operation of the Ground Water Extraction System.

ii. The Participating Group shall use its best efforts to obtain access to real property for the Ground Water Monitoring Program under reasonable terms and conditions, as necessary to comply with this Section. If such property is owned by EPA, the State, the City, or any member of the Participating Group, such entity shall grant reasonable access for this purpose without compensation upon reasonable terms and conditions. If the Participating Group cannot acquire access to real property required to comply with this Section under reasonable terms and conditions, the Parties shall proceed as described in Section XIV.

b. The Participating Group shall be responsible for all Ground Water Monitoring Program activities described in Appendix B. Those activities for which SRP is responsible are new monitoring well design specifications, well site access arrangements, supervision of the contractors funded by the Participating Companies for monitoring well installation, post-installation pump tests, and sampling, analytical, and reporting activities (with the exception of water level contour maps and water level change maps) relating to the monitoring described in Appendix B, Parts A and B. SRP shall have ground water sampling, analysis and reporting obligations under the

Ground Water Monitoring Program as set forth in Subsection VII.B.1 for up to 2 years of Phase A monitoring, one year of Phase B monitoring and 18 years of Phase C monitoring. The Participating Companies shall be responsible for all obligations under this Consent Decree relating to the Ground Water Monitoring Program and ground water monitoring described in Appendix B for which SRP is not expressly responsible. Except as otherwise provided in this Consent Decree, nothing herein shall be construed to require SRP to make payments to any well installation contractors, well site owners, or any Party in order to satisfy its obligations for Work under this Consent Decree.

c. The monitoring wells specified in Appendix B have been designed and sited to identify the Zone of Ground Water Contamination at the Site and, on the basis of presently-available data, the Parties believe that this objective can be satisfied by these wells. However, the Parties recognize that data hereafter collected and other pertinent information could indicate that these wells may not be sufficient to identify the Zone of Ground Water Contamination at the Site. Within 90 days following completion of Phase A monitoring, the Participating Companies shall prepare and submit a report to EPA that summarizes the results of Phase A monitoring and assesses whether additional monitoring wells are required to identify the Zone of Ground Water Contamination. If EPA determines, based on its review of the report and any other pertinent information, that additional monitoring wells are necessary to identify the

Zone of Ground Water Contamination, the provisions of Section IX (Additional Work) shall apply.

2. Ground Water Extraction System

a. The Participating Companies shall establish a zone of capture encompassing the entire Zone of Ground Water Contamination both laterally and vertically within the MAU and LAU by extracting ground water to create and maintain a hydraulic gradient toward the ground water extraction wells. The City shall assist in establishing a zone of capture to the extent provided in Subsections VII.C and D. The zone of capture shall be identified by ground water monitoring in accordance with the Ground Water Monitoring Program. All Parties hereto recognize that seasonal or local fluctuations in ground water levels may occur due to natural occurrences or the effects of localized ground water pumping. Such seasonal or local fluctuations may occur without impairing the overall effectiveness of the remedy. The Supplemental Study described in Subsection VII.B.4 shall analyze the nature and/or effect of any such fluctuations on the effectiveness of the remedy.

b. The effectiveness of the Ground Water Extraction System shall be determined by ground water monitoring in accordance with the Ground Water Monitoring Program described in Subsection VII.B.1, and any additional relevant information.

3. Ground Water Treatment Plant

a. i. The Participating Companies shall acquire real property suitable for construction of the Plant.

This requirement shall be satisfied through acquisition of ^ ^ the parcel^ described immediately below or of some other parcel of equivalent suitability, subject to the approval of EPA:

^ Womack Parcel:

Beginning at the Southeast corner of said section 25, T2N, R4E, of the Gila and Salt River Meridian thence South 89°52'44" West, 1301.24 feet along the South line of said section 25 to a brass cap in concrete; thence North 00°01'46" East, 659.50 feet along the center line of North 86th Street; thence North 89°53'18" East, 165.00 feet along the South line of the Northwest 1/4 of the Southeast 1/4 of the Southeast 1/4 of said section 25 to the true point of beginning; thence North 00°01'46" East, 180.00 feet; thence North 89°53'18" East, 240.00 feet; thence South 00°01'46" West 180.00 feet; thence South 89°53'18" West, 240.00 feet to the true point of beginning. Said parcel containing 43,200 square feet.

^

If the Participating Companies cannot acquire the property at a fair market price despite their best efforts, the Participating Companies may request assistance from EPA and the City in acquiring the property in accordance with Subsection XIV.A. In the event that EPA or the City assists in acquiring the property, the Participating Companies shall reimburse EPA or the City for any acquisition costs it incurs that are not inconsistent with the NCP.

ii. The Participating Companies shall contract for an environmental assessment to be completed on the property prior to its acquisition. Any such assessment shall be

performed by a third party contractor that is acceptable to all Parties pursuant to a scope of work that is acceptable to all Parties. The assessment shall be similar to assessments that are customary for property related to industrial activity and shall make maximum use of prior environmental testing completed on the property. The assessment shall include representative soil gas or soil boring tests. The Participating Companies shall pay reasonable costs associated with completion of the environmental assessment. The assessment shall determine whether there has been a release or threatened release under state or federal law of a hazardous substance, or of a regulated substance as defined in Arizona Revised Statutes Section 49-1001(13), into the environment on or from the property. If the assessment shows that there has been such a release or threatened release, the City shall not be obligated to take title to the property unless any soil contamination has been remediated to levels acceptable to ADEQ. The contractor performing the assessment shall perform a visual inspection of the property after completion of construction of the Plant and prior to the transfer of ownership of the Plant to the City pursuant to Subsection VII.B.3.d in order to ascertain whether there has been a release or whether a threatened release exists since the initial environmental assessment. Any release which occurs subsequent to the initial environmental assessment and prior to transfer of the Plant to the City shall be remediated to levels acceptable to ADEQ by the Participating Companies as provided in this Subsection.

b. The Participating Companies shall construct a Plant to treat ground water according to a design to be approved by EPA (the "Design"). The Participating Companies shall pay the Design costs, including the costs of preparing an Operation and Maintenance Plan, Health and Safety Plan and a QA/QC Plan, that exceed the City's obligation to pay Design costs in the amount specified in Subsection VII.C.8. The Plant shall include piping to the Plant from the ground water extraction wells included as part of the Ground Water Extraction System, piping from the Plant to the City's Pima Park reservoir, which is in the vicinity of the Plant, and the connection facilities between the Plant and SRP's water supply system. The Plant shall have an initial capacity to treat at least 8400 gpm of ground water. If, based on the analysis included in the Supplemental Study required by Subsection VII.B.4 and any other relevant information, EPA determines that the Plant must be expanded to control the Zone of Ground Water Contamination or for any other reason consistent with the NCP and the purposes of this Consent Decree, the procedures set forth in Section IX (Additional Work) shall apply.

c. As specified in the ROD, the Plant constructed by the Participating Companies shall include air stripping to reduce volatile organic compound ("VOC") concentrations in treated water. The air stripping towers shall be equipped with activated carbon adsorption units capable of removing 90% of VOC air emissions. Air samples shall be taken monthly during the first year of operation and quarterly

thereafter. During the first 13 years of the Plant's operation, the carbon adsorption units shall be continuously operated, regardless of whether they are needed to comply with "applicable" and "relevant and appropriate" requirements ("ARARs") as provided in Section 121(d) of CERCLA, 42 U.S.C. § 9621(d), or air emissions levels specified in OSWER Directive 9355.0-28, "Control of Air Emissions From Superfund Air Strippers at Superfund Ground water Sites" (June 15, 1989). Following this 13-year period, the Participating Companies shall not be obligated to operate, maintain, or finance the operation or maintenance of the carbon adsorption units if the Participating Companies are able to demonstrate, based on available data, that air emissions without the use of such units meet published EPA guidance as well as ARARs emission requirements, including state and local requirements. EPA shall promptly review and make a determination based on any submission made by the Participating Companies under this Subsection and any other relevant information, and shall promptly issue such determination. In the event the City continues to operate the carbon adsorption units after EPA determines that such units need not be operated, any costs incurred by the City in connection with the operation or maintenance of such units shall not qualify as response costs and the Participating Companies shall not be obligated to reimburse the City for operation and maintenance costs.

d. The Participating Companies shall transfer ownership of the Plant to the City upon the submittal of the

Report of Completion of the Plant to EPA under Subsection XXXIX.A of this Decree.

e. SRP will accept start-up and excess water treated by the Plant that is not taken by any other Party under the following terms and conditions:

i. The following matters will be determined by the appropriate Parties through good faith negotiations prior to the Plant beginning operations:

(a) The monitoring requirements necessary to ensure state water quality standards will be met in the SRP water supply system downstream of the discharge of start-up water;

(b) The formula for allocating between SRP and the City fees or charges that may be assessed on ground water pumped as part of the Ground Water Extraction System, and delivered to SRP by the City as excess water and served to SRP shareholders.

ii. For the purposes of this Decree, the terms "Plant operator," "start-up water," "excess water" and "state water quality standards" are defined as follows:

(a) "Plant operator" is the Participating Companies during the start-up period described in Subsection VIII.H ("start-up" period) and the City thereafter.

(b) "start-up water" is ground water treated by the Plant and generated (1) during the start-up period; or (2) after restarting the Plant or a major component of

the Plant following necessary maintenance or repair, or shutdown of the Plant for any reason beyond the control of the City, subsequent to the start-up period.

(c) "excess water" is ground water treated by the Plant, other than start-up water. Excess water may include water that the City cannot accept because the City does not have customer demand for the water, water that the City cannot accept because of a breakdown in its water distribution system, and water that the City cannot recharge.

(d) "state water quality standards" applicable for purposes of Subsection VII.B.3.e are the federal maximum contaminant levels adopted under the Safe Drinking Water Act, 42 U.S.C., §§ 300f-300j-11.

iii. Excess water will be discharged to the SRP water supply system at the McKellips Lake turnout. Start-up water will be discharged to SRP's water supply system at 82nd Street and Thomas Road. The locations of the 82nd Street and Thomas Road connection and the McKellips Lake turnout connection are indicated on the map delineated Appendix D to this Decree.

iv. The Participating Companies will install, at their sole cost, the connection facilities necessary between the Plant and the point of discharge to SRP's water supply system at 82nd Street and Thomas Road. The City will design, and the Plant operator will operate and maintain, the connection facilities. The connection facilities between the Plant and the point of discharge to SRP's water supply system

will be designed, installed, operated and maintained at no cost to SRP. SRP will provide access to its property, under reasonable terms and conditions, for the installation, operation and maintenance of the connection facilities. The design of the connection facilities will be subject to SRP's preconstruction approval, which will not be unreasonably withheld. The connection facilities will be designed and operated so as not to permit automatic by-pass of the Plant or flow-through from the Plant to SRP's water supply system, and so as to enable SRP to close the connection.

v. The Plant operator will make every effort to provide SRP at least 24 hours advance telephone notice of each discharge of start-up or excess water to SRP's water supply system. Under circumstances where 24 hours advance notice is not possible, the Plant operator will provide as much advance notice as possible. SRP will inform the Plant operator as to the SRP office and telephone number to which such notice should be given. SRP shall up-date this information as appropriate. The notice must include an estimate of the quantity and quality of the water to be discharged and how long the discharge will continue. In no event will discharge to the SRP water supply system be made unless and until SRP approves the request to discharge. SRP may refuse the request to discharge water, or may direct that discharge of water cease, if there is insufficient capacity in the water supply system to receive the water, or insufficient demand for the water from SRP shareholders, or, as

described in Subsection VII.B.3.e.viii, if water quality criteria or standards are not met. The operating capacity of the SRP water supply system at 82nd Street and Thomas Road will vary from approximately 2500 gpm to 5500 gpm. Insufficient capacity shall include periods when the water supply system is dried up for maintenance and periods when the water supply system is at full capacity due to flood conditions. SRP and the Plant operator agree to coordinate operations, and SRP will not unreasonably withhold approval of any request to discharge water to the SRP water supply system, consistent with this Subsection VII.B.3.e.

vi. (a) The Plant operator will take one representative grab sample of start-up water from the Plant at the point of discharge into the SRP water supply system within 24 hours after initiation of each discharge of start-up water, analyze the sample for volatile organic compounds on an expedited basis, using EPA method 601/602 or 502.2, and provide the results to SRP as soon as possible, but not later than 7 days after the initial discharge. While the discharge of start-up water to SRP's water supply system continues, the Plant operator will also sample the discharge every 7 days, and analyze and provide the results to SRP within 7 days after taking the sample.

(b) The Plant operator shall not discharge start-up water that causes a violation of state water quality standards in the SRP water supply system. The terms of any monitoring required to show compliance with state water

quality standards will be determined pursuant to Subsection VII.B.3.e.i. -

(c) The City shall not discharge excess water that does not meet the treatment criteria set forth in Subsection XX.A, and federal maximum contaminant levels adopted under the Safe Drinking Water Act, 42 U.S.C. §§ 300f-300j-11. The monitoring requirements the City must comply with under Subsection VIII.K of this Decree will serve as the monitoring required to show compliance with this Subsection VII.B.3.e.vi.(c).

vii. The discharge of water to SRP's water supply system under this Subsection VII.B.3.e will not be subject to any state, federal, or local permitting requirements, pursuant to CERCLA Section 121(e), 42 U.S.C. § 9621(e). The Plant operator, however, will be solely responsible for complying with the state water quality standards and requirements set forth in Subsection VII.B.3.e.vi above.

viii. SRP may direct that discharge of water to its water supply system cease or stop the discharge by closing the connection facilities to the SRP water supply system, if:

(a) any sampling results obtained pursuant to Subsection VII.B.3.e.vi.(a) (start-up water) indicate that at the point of discharge to the SRP water supply system the following criteria are not being met:

trichloroethene (TCE)	-	20 ppb
1,1,1,-trichloroethane (TCA)	-	200 ppb

	1,1,-dichloroethene (DCE)	-	20 ppb
-	perchloroethene (PCE)	-	20 ppb
	chloroform	-	20 ppb

(b) any sampling of start-up water that is required pursuant to Subsection VII.B.3.e.vi.(b) (start-up water) indicates that the discharge has caused a violation of state water quality standards, or sampling of excess water pursuant to Subsection VIII.K indicates that the excess water does not meet the treatment criteria set forth in Subsection XX.A or federal maximum contaminant levels adopted under the Safe Drinking Water Act, 42 U.S.C. §§ 300f-300j-11, or

(c) the Plant operator discharges without prior SRP approval, or

(d) there is insufficient capacity in the SRP water supply system to receive the water, or

(e) there is insufficient demand for the water from SRP shareholders.

ix. SRP may stop the discharge by closing the connection facilities to the SRP water supply system if the Plant operator fails to cease discharge upon SRP's direction.

x. If SRP refuses a request to discharge, directs that discharge cease, or stops the discharge by closing the connection facilities, the provisions of Section XXIV shall apply.

xi. SRP will not be liable for any charges or penalties that may arise from SRP's acceptance of water

pursuant to this Decree, except as stated in the following sentence, and SRP will not be required to make any payment for receipt of such water. SRP will pay its share of any fees or charges assessed on ground water pumped as part of the Ground Water Extraction System and delivered to SRP by the City as excess water, and served to SRP shareholders, based on the formula agreed to pursuant to Subsection VII.B.3.e.i.(b). Neither the City nor the Participating Companies shall be required to make any payment for discharging to SRP's water supply system.

xii. SRP will use its best efforts to reduce pumping from SRP wells within the City of Scottsdale in a given year by the amount of excess water received and used by SRP shareholders in that year; provided, that SRP will not be required to incur additional ground water production costs to achieve the reduction in pumping.

4. Supplemental Study

a. The Participating Companies shall perform and submit to EPA a Supplemental Study that will:

i. evaluate whether the pumping and treating capability of the Ground Water Extraction System and Plant is sufficient to maintain the zone of capture and to remediate the Zone of Ground Water Contamination to levels set forth in Subsection XX.B;

ii. if expansion and/or other measures are required to maintain the zone of capture or to remediate the Zone

of Ground Water Contamination, identify and analyze potential alternatives for effectuating these goals;

iii. analyze the impact of any recharge and reinjection of ground water at the Site on remediation of the Site; and

iv. evaluate the sufficiency of the Ground Water Monitoring Program.

b. It is intended that the Supplemental Study, along with other relevant information, shall provide the basis for an EPA finding that the Work constitutes the final remedy for the MAU and LAU or, alternatively, it shall provide the basis for expanding the Ground Water Extraction System and/or Plant in accordance with Section IX (Additional Work).

c. It is also intended that the Supplemental Study, along with other available information, shall constitute the basis for the first CERCLA Section 121(c) five year review as provided for in Subsection IX.B.

5. Operations and Maintenance of Monitoring Well Program and Treatment Plant

a. As provided in Subsection VII.B.1, the Participating Group shall operate and maintain the Ground Water Monitoring Program. Operations and maintenance shall include the replacement of any necessary equipment, including monitor well pumps.

b. The Participating Companies shall finance operations and maintenance of the Ground Water Treatment Plant in accordance with this Consent Decree by payments made directly to

City. For purposes of this Section, operation and maintenance costs shall mean the following:

(i) cost of utilities to operate the Plant;

(ii) cost of necessary replacement of any Plant-related equipment and materials;

(iii) all direct labor salary or hourly rate costs, including fringe benefits, of employees of the City assigned or designated to operate, maintain or supervise, whether on a full time or part time basis, the start-up of the Plant and the subsequent operation and maintenance of the Plant, including administrative, clerical and/or legal support services directly related thereto, but excluding overhead costs;

(iv) all reasonable costs, expenses and obligations, excluding overhead costs, paid or incurred by the City, directly related to participation in start-up of the Plant and subsequent operation and maintenance of the Plant, including the cost of laboratory services and other actions necessary for the City to comply with its obligations in the Consent Decree related to operation of the Plant or compliance with information requests from the Participating Companies. The City may perform water sampling and laboratory testing as reasonably necessary to operate the Plant and comply with the Consent Decree without penalties, and the costs thereof shall be reimbursed to the City by the Participating Companies.

The City shall invoice the Participating Companies for its operation and maintenance costs on a monthly basis and shall include with the invoice itemized documentation of costs incurred during the billing period. Payment shall be made to the City within 30 days of receipt of an invoice documenting the same. Interest on payments not received within the 30 day period shall be at a rate of 1% per month commencing on the 31st day following the date of a monthly invoice.

c. If the Participating Companies dispute a charge on the City's invoice, they shall pay the amount on the invoice to the City and accompany the payment with a notice of dispute. Within 20 days of the date of the notice of dispute, the Participating Companies and the City shall agree on a mechanism for resolving the dispute, such as mediation, binding arbitration or litigation. The Participating Companies may aggregate disputed charges for one calendar year and notice these for dispute with the payment of the last bill for the year. To the extent the Participating Companies prevail in the dispute, the City shall credit toward future payments any amounts due to the Participating Companies plus interest on such amounts at the rate of 10% per year from the date of payment by the Participating Companies. If arbitration or mediation is chosen, the cost of the mediator or arbitrator shall be borne by the unsuccessful Party in the dispute. The Parties shall attempt to resolve any dispute expeditiously and in good faith.

C. Requirements for Work by the City

1. The City shall make production wells Nos. 31, 71, 72 and 75 available for use in the Ground Water Extraction System. (SRP shall make available production well 23.3E-7.3N [City well No. 31] in the event SRP takes control of this well from the City.) Additional City production wells having water quality levels for volatile organic compounds that do not satisfy drinking water standards established under the Safe Drinking Water Act also shall be made available by the City for use in the Ground Water Extraction System if EPA determines that additional ground water must be extracted in order to control the Zone of Ground Water Contamination pursuant to Section IX (Additional Work). The City shall have no obligation under this Consent Decree to drill new production wells for use in the Ground Water Extraction System.

2. The City shall operate and maintain the Ground Water Extraction System, in accordance with the ground water pumping rate specified in the 1988 ROD, at a minimum of 6300 gpm, averaged over each calendar year, or 3311 million gallons total each year. The Parties acknowledge that the Plant is designed to treat to drinking water standards influent water with a maximum concentration of 1500 ppb of trichloroethene, and to achieve the treatment goals identified in Table VII-2 of the ROD. The City shall be responsible for all costs of maintenance and replacement of extraction well equipment. The City shall pay the proportional utility costs to extract the amount of water that is directly served by the City to its customers during each

calendar year, with a minimum of 4200 gpm, averaged over each calendar year, or 2207 million gallons of water per year. The Participating Companies shall pay the proportional utility costs to extract the amount of water that is not directly served by the City to its customers during each calendar year, with a maximum of 2100 gpm (1103 million gallons) of water per year. The City shall provide the Participating Companies with monthly records of the amounts of water (i) produced by the Ground Water Extraction System, (ii) delivered directly to its customers, and/or (iii) delivered to the recharge system or SRP's water supply system pursuant to Subsection VII.B.3.e.

3. The City shall design the Plant, subject to EPA approval and taking into account the recommendations of the Participating Companies, as described in Subsection VIII.D.

4. The City shall submit a Health and Safety Plan and a Quality Assurance/Quality Control Plan to EPA and the Participating Companies pursuant to Subsections VIII.E & G. The City and the Participating Companies jointly shall submit an Operation and Maintenance Plan ("O&M Plan") to EPA pursuant to Subsection VIII.F.

5. Ownership of the Plant shall be transferred by the Participating Companies to the City upon the submittal of the Report of Completion of the Plant to EPA in accordance with Subsection XXXIX.A, and the City shall implement operation and maintenance activities at the Plant in accordance with

Subsection VII.B.3.d after transfer of ownership of the Plant to the City.

6. The City shall serve to its customers ground water treated by the Plant that meets all applicable drinking water standards in the amounts necessary to satisfy the municipal water demand in the appropriate zones of the City's water system. Any treated water meeting applicable drinking water standards not directly served by the City may be either returned to the aquifer by the City at its expense or delivered to the SRP water system subject to the provisions of Subsection VII.B.3.e. The City shall pay all capital, operations and maintenance costs associated with the recharge of treated water.

7. After transfer of ownership of the Plant to the City, any measurable noncompliance with the treatment criteria in Subsection XX.A shall be reported orally to EPA and SRP by the City within 48 hours of discovery and in writing within 7 days of discovery. The written submission shall include a description of the noncompliance and its cause; the period of noncompliance, including the dates and times, and, if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate and prevent reoccurrence of the noncompliance.

8. The City shall be responsible, and covenants not to sue any other Party, for payment of costs to design the Plant up to a maximum expenditure of $250,000. The City will forward to the Participating Companies invoices for design costs

exceeding $500,000 and will include copies of all past Malcolm-Pirnie invoices. The Participating Companies shall reimburse the City for any design costs paid by the City in excess of $500,000. The billing, payment and dispute resolution provisions of Subsections VII.B.5.b and VII.B.5.c shall apply to such reimbursement for design costs.

9. Except for Plant design costs and operation and maintenance of ground water extraction wells as provided in this Subsection VII.C, or as otherwise provided in this Consent Decree, nothing herein shall be construed to require payments by the City to any person or Party other than EPA and the State, in order to satisfy its obligations under this Consent Decree.

D. Shared Work Requirements

1. Each Party hereto shall coordinate, in a manner that does not adversely affect the effectiveness of the Ground Water Extraction System, the operations of any wells under its control which are not a component of the Ground Water Extraction System and which could hydraulically influence the Ground Water Extraction System's zone of capture. In addition, each Party (including the United States, the State and other Parties that do not operate wells at the Site) shall, within the limits of its discretion, facilitate the effectiveness of the Ground Water Extraction System by encouraging any non-Parties to operate wells in a manner that will not adversely affect the Ground Water Extraction System's zone of capture.

2. Nothing herein shall be construed to prohibit SRP or the City from using its wells in the Site to satisfy its water supply obligations, taking account of considerations such as water demand, availability of supplies, climatic conditions and capability to deliver supplies; provided, however, that if SRP or the City is able to satisfy its water supply obligations by reasonably operating its system in a manner which does not adversely impact the hydraulic effectiveness of the Ground Water Extraction System, it shall do so. SRP shall invoke this paragraph only if it concludes that an actual or potential emergency, drought or other force majeure condition requires such action.

VIII. SCHEDULE OF THE WORK

A. Except where noted otherwise, all dates referred to in the following schedule are calendar days; however, should a deadline fall on a weekend or a Federal holiday, the deadline shall be construed to continue to the next business day.

B. In January, 1990, field activities to install wells required for the Ground Water Monitoring Program were initiated. The installation, development, post-installation pump testing and post-completion sampling of the 23 wells listed in Appendix B, Part A was completed prior to December 31, 1990. SRP submitted, and EPA approved, a Field and Laboratory Operations Plan applicable to the installation, development, post-installation pump testing and post completion sampling of such

wells. Routine monitoring of all wells comprising the Ground Water Monitoring Program shall proceed in accordance with the three phases described in Appendix B as follows:

Phase A: By October 1, 1990, for all wells installed and completed by that date. All subsequently completed wells will be incorporated into the program upon completion of each such well.

Phase B: Upon transfer of the Plant to the City in accordance with Subsection VII.C.5.

Phase C: One year following the initiation of Phase B monitoring.

SRP has submitted to EPA a Sampling and Analysis Plan ("SAP"), a Quality Assurance/Quality Control ("QA/QC") Plan and a Worker Health and Safety Plan applicable to monitoring well sampling and analysis during phases A, B and C. To the extent appropriate, the provisions of Subsection XII.B shall be applicable to the QA/QC procedures for monitoring well sampling and analysis.

C. Within 90 days of the effective date of this Consent Decree, the Participating Companies shall submit a copy of a purchase contract for the real property required by Subsection VII.B.3.a of this Consent Decree. If, however, within 60 days of the effective date of this Consent Decree the Participating Companies have not been able to acquire the parcel on reasonable terms at a fair market price despite their best efforts, and if the Participating Companies choose, therefore, to request assistance in acquiring the land, they shall submit a written request for assistance to EPA within 65 days of the effective date of this Consent Decree. If the Participating

Companies request EPA assistance in acquiring the land within 65 days of the effective date of this Decree, failure to submit a copy of the purchase contract within 90 days shall not be a violation of this Decree and shall not be subject to stipulated penalties pursuant to Section XXIII below.

D. Plant Design Schedule

1. The City has submitted a 30% design to EPA and the Participating Companies. EPA approved the 30% design on November 30, 1990. The Parties agree that the design of the Plant shall include the following conceptual elements:

a. Shutoff valves in the piping system shall be located as determined by the City to be necessary for isolation of sections of the system, with a maximum number of approximately twelve (12) shutoff valves and approximately five to seven (5-7) air/vacuum release valves.

b. Pipe sizes in the system shall be of the diameter specified below:

Section	Diameter (Inches)
Well 75 to Node "A"	12
Node "A" to Nodes "B" and "E"	12 (City may increase size to 16. City is responsible for incremental cost.)
Well 71 to Well 72	16
Well 72 to Node "E"	20 (Size will be reviewed at 60% design.)
Node "E" to Well 31	24
Well 31 to Plant	24

The Node designations refer to those depicted in the Malcolm-Pirnie/City of Scottsdale plan (designated G-11 and dated January 1990), which was included as part of the 30% design.

c. Air stripping columns shall be square or rectangular concrete or block structures as defined in the Malcolm-Pirnie 30% design. There shall be three (3) columns, each rated at 3150 gpm.

d. The Plant design shall include the capability to recycle treated water as indicated by the Malcolm-Pirnie 30% design.

e. The Plant control system shall be in accordance with the conceptual design presented in the Malcolm-Pirnie 30% design.

f. Concerning the depth and separation of pipes, representatives of the City and the Participating Companies shall jointly submit plans to Maricopa County providing for a four-foot depth of piping where feasible. On any related issues pertaining to State, Maricopa County or City code requirements, the City and the Participating Companies shall jointly approach the appropriate agency and together resolve the issues.

2. The conceptual elements listed in this Subsection shall be included in the Design of the Plant without substantial deviation from this Subsection, unless the Participating Companies, the City, the State and the EPA otherwise agree.

3. The City shall submit the Design of the Plant to the Participating Companies, SRP and EPA for their review upon 60% completion and 90% completion in accordance with the following schedule:

a. 60% completion: within 90 days after EPA approval of the 30% design;

b. 90% completion: within 90 days after EPA approval of the 60% design.

c. Final design: within 30 days after EPA approval of the 90% design.

4. The Participating Companies and SRP shall have 15 days from receipt of each Design report to review and comment on the Design and suggest modifications at each stage of completion. Within 35 days of receipt of each Design report, the Parties and the City's design firm shall conduct a 1-day workshop to discuss the potential inclusion of the Participating Companies' review comments into the final design. The Participating Companies expect that modifications addressing value engineering changes that do not adversely affect the reliability, operating flexibility, and/or the basic requirements of the City's Development Review Board will be included in the final design. The Participating Companies shall begin construction of the Plant within 90 days of receipt of the EPA-approved Final Design.

E. The City shall submit to the EPA and the Participating Companies, concurrent with the 90% design

submission, a Health and Safety Plan, applicable to construction of the Plant.

F. The City and the Participating Companies jointly shall submit to the EPA, within 270 days of EPA approval of the final Design, an Operation and Maintenance ("O&M") Plan for the Plant, previously approved by the City and the Participating Companies. The O&M Plan shall describe the proposed operating procedures for the Plant, the proposed preventive maintenance schedule, and the suppliers' life-cycle and replacement schedules for the Plant equipment. In the event the Participating Companies and the City are unable to agree upon the provisions of an O&M Plan, they shall prepare an O&M Plan with their differing positions identified in the Plan, and submit these positions to EPA for EPA's resolution. In the event of a dispute, the provisions of Section XXV shall apply.

G. The City shall submit to the EPA and the Participating Companies, concurrent with the 90% design submission, a Quality Assurance/Quality Control ("QA/QC") Plan described in Subsection XII.A.

H. Within 480 days after initiating construction of the Plant, the Participating Companies shall complete construction and submit a Report of Completion of the Plant to EPA in accordance with Subsection XXXIX.A. Prior to the submission of the Report of Completion of the Plant, the Participating Companies shall complete, with the assistance of the City, a period of operation of the Plant to confirm equipment

capabilities and actual operating parameters (hereinafter referred to as the "start-up period"). The start-up period is not expected to exceed 3 months. If EPA, the City and the Participating Companies conclude that the start-up period should be extended beyond 3 months, the date required for completion of the Plant shall be extended accordingly.

I. Upon submittal of a Report of Completion of the Plant to EPA under Subsection XXXIX.A, the Plant shall be transferred to the City.

J. The Participating Companies shall prepare the Supplemental Study required in Subsection VII.B.4 within 2 years after EPA issues the Certification of Completion for the Plant.

K. After transfer of the Plant to the City, the City shall sample treated water every 7 days during the first 2 years of operation of the Plant and shall sample treated water monthly thereafter. If reasonably necessary to operate the Plant and comply with this Decree without penalties, the City may sample treated water at more frequent intervals. The weekly and monthly samples required by this Subsection VIII.K shall be analyzed by EPA Methods 502.2 or 601/602 and the results shall be transmitted to EPA, the State, the City, SRP and, if requested, to the Participating Companies, directly from the laboratory within 30 days of the sampling event.

L. In the event the EPA Project Coordinator suspends the Work or any other activity at the Site pursuant to Subsection XIII.B, EPA will extend the compliance schedule of

this Consent Decree for the minimum period of time, if any, necessary to perform the Work.

M. Any member of the Participating Group or the City may propose an extension to the Work schedule pursuant to Section XXVII (Modification).

IX. ADDITIONAL WORK

A. If based on the Supplemental Study required in Subsection VII.B.4 and any additional information EPA deems relevant, EPA determines that the Ground Water Extraction System is not withdrawing a sufficient volume of ground water to create or maintain the zone of capture, or is otherwise inadequate to remediate the Zone of Ground Water Contamination to levels set forth in Subsection XX.B, or that the Plant does not have sufficient capacity to treat the volume of water that should be extracted in order to maintain the zone of capture, EPA may, if required by the NCP and any EPA guidance published in the Federal Register, reopen the 1988 ROD for potential amendment. Any such amendment shall adhere to the NCP and any other requirements that are applicable to ROD amendments.

B. To the extent required by Section 121(c) of CERCLA, 42 U.S.C. § 9621(c), and any applicable regulations, EPA shall review the remedial action at the Site following submittal of the Supplemental Study, and at least every 5 years thereafter, to assure that human health and the environment are being protected by the remedial action implemented hereunder. Until such time as EPA certifies the completion of the remedial action

pursuant to Subsection XXXIX.B and except as provided in Subsection VII.B.4.c., EPA may request that the Participating Companies submit a plan for additional data collection or data analysis necessary to complete such review. Following submission of the plan, EPA shall complete its review and determine if additional Work is necessary to achieve the purpose of this Decree. Thereafter, the Parties shall proceed according to Subsection IX.C below.

C. If the ROD is amended to require expansion of the Plant or other major changes in implementation of remedial activity at the Site, or if EPA determines, on the basis of the provisions of Subsection VII.B.1.c (Phase A monitoring report), Subsection VII.B.4 (Supplemental Study), Subsection IX.B (Five Year Review) or other relevant information, that additional Work is necessary at the Site to achieve the purpose of this Consent Decree, EPA shall explain the basis for the proposed additional Work and it shall initiate negotiations with the Parties concerning such additional activities. This informal negotiation period shall continue up to 60 days, so long as the Parties are participating in good faith negotiations, unless the Parties agree to a longer period. After this informal negotiation period, the provisions of Subsection XXV.B (Dispute Resolution) shall apply.

D. Any additional Work covered by this Section shall be set forth in a modification to this Consent Decree that is

executed by all Parties and approved by the Court pursuant to Section XXVII.

X. REPORTING AND APPROVALS/DISAPPROVALS

A. Progress Reports

1. Initial Reporting Schedule

a. The Participating Companies shall submit progress reports to EPA with a copy to the City and the State on a monthly basis which describe all Work commenced or completed during the reporting period up and until the transfer of the Plant to the City. SRP submitted progress reports to EPA, with a copy to the City and the State, which described all Work described in Subsection VII.B.1 relating to the Ground Water Monitoring Program commenced or completed during the reporting period. SRP submitted such reports on a monthly basis until installation of all monitoring wells described in Appendix B, Part A was completed prior to December 31, 1990.

b. All such reports shall identify Work activities projected to be commenced or completed during the next reporting period and any problems that have been encountered or are anticipated by the Party in commencing or completing the Work activities. These progress reports shall be submitted by the 10th of each month for Work done the preceding month and planned for the current month.

2. Subsequent Reporting Schedule

a. The reporting schedule set forth in Subsection X.A.1 shall be replaced for the Participating Companies by a quarterly reporting schedule which shall take effect upon transfer of ownership of the Plant pursuant to Subsection VII.C.5. All quarterly progress reports shall be submitted to EPA and the State by the 15th of April, July, October, and January for the Work done during the preceding quarter and planned for the current quarter. This schedule shall remain in effect until three years after the initiation of the quarterly reporting schedule. All subsequent progress reports shall be submitted to EPA and the State on a semiannual basis by the 15th of July and January for the Work done during the preceding six month period and planned for the current 6 month period. This schedule shall remain in effect until all obligations are fulfilled by the Participating Companies under the terms of this Consent Decree, unless such schedule is modified by the mutual agreement of EPA and the Participating Companies.

b. All such reports shall identify Work activities projected to be commenced or completed during the next reporting period and any problems that have been encountered or are anticipated by the Party in commencing or completing the Work activities.

3. If SRP or the Participating Companies fail to submit any progress report in accordance with the schedule set forth above, the provisions of Section XXIII shall be applicable.

B. Reports, Plans, and Other Items

1. Any reports, plans, specifications (including discharge or emission limits), schedules, appendices, and attachments required or established by this Consent Decree are, upon approval by EPA, incorporated into this Consent Decree. If there is any noncompliance with such EPA-approved reports, plans, specifications (including discharge or emission limits), schedules, appendices, or attachments, the provisions of Section XXIII shall be applicable. Any such determination of noncompliance with which the Participating Group or the City disagrees shall be deemed a dispute and subject to the provisions of Section XXV (Dispute Resolution).

2. Any objections by EPA shall be in writing and shall include an explanation by EPA of why the plan, report, or item has not been approved.

3. If EPA objects to any plans or reports (other than progress reports), or other items required to be submitted to EPA for approval pursuant to Section VII (Work to be Performed), Section VIII (Schedule of Work), Section XII (Quality Assurance/Quality Control), or Section XV (Assurance of Ability to Complete Work), the Participating Group or the City shall have 21 days from the receipt of EPA's objections to respond to such objections and resubmit the plan, report, or item for EPA

approval, except that the period for the Participating Group's or the City's response may be extended by mutual agreement of EPA and the Participating Group or the City.

4. In the event that EPA determines that any resubmitted plan, report or item is in noncompliance with this Consent Decree or the NCP, and gives the written notice described in Subsection XXIII.A.2, the Parties shall proceed as provided in Section XXIII. Any such determination of noncompliance with which the Participating Group or the City disagrees shall be deemed a dispute, and subject to the provisions of Section XXV (Dispute Resolution). In the event that EPA's objections to the plan, report or other item have been addressed to EPA's reasonable satisfaction by any resubmission permitted under this Section, then the Participating Group or the City shall not be deemed to be in violation of this Consent Decree and any stipulated penalties under Subsection XXIII.A.1 shall not be deemed to have accrued.

5. A copy of any report, plan or other item submitted to EPA pursuant to Subsection X.B shall be provided to the State at the same time.

6. Upon request, EPA and the State shall make available to the Participating Group, to the extent allowable by law, copies of work plans and other documents prepared by EPA or the State and their contractors relating to activities for which EPA or the State intends to seek reimbursement under this Decree. To the extent practicable, such work plans and other documents

shall be made available to the Participating Group prior to implementation of the activities identified in such documents.

C. State-EPA Consultation

Prior to approving any reports, plans, specifications, schedules, appendices and attachments required or established by this Decree, EPA shall provide the State with a reasonable opportunity to review and comment on such reports and other items. In addition, EPA will confer with the State regarding Section IX (Additional Work), Section XV (Financial Assurances), Subsection XX.C (Technical Impracticability), enforcement of this Decree pursuant to Section XXIII or otherwise, Section XXIV (Force Majeure), Section XXV (Dispute Resolution), Section XXVII (Modification) and Section XXXIX (Termination and Satisfaction).

XI. WORKER HEALTH AND SAFETY PLAN

The Worker Health and Safety Plans required pursuant to this Consent Decree shall satisfy any applicable OSHA requirements.

XII. QUALITY ASSURANCE/QUALITY CONTROL

A. Quality Assurance/Quality Control ("QA/QC") Plans required pursuant to this Consent Decree, where applicable, shall be prepared in accordance with the current EPA guidance entitled Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans, QAMS-DO5/80, and subsequent amendments

to such guidelines upon written notification by EPA of such amendments.

B. In collecting and analyzing any samples pursuant to this Consent Decree, the Parties shall use only laboratories that adhere to QA/QC procedures in accordance with the QA/QC plans submitted pursuant to this Consent Decree and that use standard EPA chain of custody procedures as documented in the National Enforcement Investigations Center Policies and Procedures Manual, as revised in November 1984, and the National Enforcement Investigations Center Manual for the Evidence Audit, published in September 1981. In order to provide quality assurance and maintain quality control regarding all samples collected pursuant to this Consent Decree, each Party, as to the laboratory work for which it is responsible, shall:

1. Ensure (contractually or otherwise) that all laboratories used for analysis of samples taken pursuant to this Consent Decree provide for reasonable access of EPA personnel and EPA authorized representatives to assure the accuracy of laboratory results related to the Work.

2. Ensure that laboratories used for analysis of samples taken pursuant to this Consent Decree perform all analyses according to methods deemed satisfactory by EPA in advance of the analysis. Accepted EPA methods are documented in the "Contract Lab Program Statement of Work for Inorganic Analysis" and the "Contract Lab Program Statement of Work for Organic Analysis" dated July 1985.

3. Ensure that all laboratories used for analysis of samples taken pursuant to this Consent Decree utilize an EPA or EPA equivalent QA/QC program. As part of the QA/QC program and upon reasonable request by EPA, such laboratories shall perform at their expense analyses of samples provided by EPA to demonstrate the quality of each laboratory's data. EPA may provide to each laboratory a maximum of four aqueous samples per year for analysis by gas chromatography methods.

4. Submit a quality assurance report to EPA as part of the quarterly monitoring reports during Phases A and B and as part of the semiannual reports during Phase C. This report shall contain information that demonstrates whether the laboratories used are complying with this Section and the QA/QC Plans submitted pursuant to this Consent Decree.

C. The Parties agree not to contest EPA's authority to conduct field audits to verify compliance with QA/QC requirements.

XIII. PROJECT COORDINATOR

A. By the effective date of this Consent Decree, EPA, the State, the City, SRP and the Participating Companies shall each designate a Project Coordinator for Work undertaken by it or under its supervision. The Project Coordinators will monitor the progress of the Work and coordinate communication among all Parties. The EPA Project Coordinator shall have the authority

vested in the Remedial Project Manager and the On-Scene Coordinator by the NCP.

B. The EPA Project Coordinator shall have the authority to stop the Work, or any other activity at the Site which, in the opinion of the EPA Project Coordinator, may present or contribute to an endangerment to public health, welfare, or the environment, or cause or threaten to cause the release of hazardous substances from the Site. The Project Coordinator of a Party shall have authority to stop any activity for which that Party is responsible under this Consent Decree; provided, however, that stoppage of any activity by the Project Coordinator of a Party other than EPA shall not of itself alter the requirements, including schedules, for performance of the Work under this Consent Decree.

C. Except as otherwise provided in this Consent Decree, the Project Coordinators do not have the authority to modify in any way the terms of this Consent Decree, including Appendix B or any approved design or construction plans. The absence of any Project Coordinator from the Site shall not be cause for stoppage of the Work. Any Party may change its respective Project Coordinator by notifying other Parties in writing at least 10 days prior to the change.

D. The Participating Companies', SRP's, the City's and/or the State's Project Coordinator may assign other representatives, including other contractors, to serve as a Site

representative for oversight of performance of daily operations during remedial activities.

E. The EPA Project Coordinator may assign other representatives, including other EPA employees or contractors, to serve as a Site representative for oversight of performance of daily operations during remedial activities, not including authority to stop the Work.

F. Prior to invoking formal dispute resolution procedures, any unresolved dispute arising between the EPA Site representative and the Participating Companies', SRP's, or the City's Site representative or Project Coordinator shall be discussed with the EPA Project Coordinator.

XIV. ACCESS

A. To the extent that access to or easements over property within or outside the boundaries of the Site but not owned or controlled by a member of the Participating Group is required for performance of this Consent Decree, the Participating Group shall use its best efforts to obtain access agreements from the present owners or from persons who have control over such property within 90 days prior to the date access is required to comply with this Consent Decree. Such access agreements shall provide access under reasonable terms and conditions to any Party and its authorized representatives. In the event that access agreements are not obtained at least 45 days prior to the date access is required, the Participating

Group shall notify EPA regarding both the lack of, and efforts to obtain, such agreements. If necessary, within the exercise of its discretion and consistent with its legal authority, EPA agrees to use its best efforts to assist the Participating Group in obtaining such access. The force majeure provisions of Section XXIV shall govern any delays caused by difficulties in obtaining necessary access to or easements over property. In the event EPA exercises its access authorities under Section 104(e) or Section 104(j) of CERCLA, in order to obtain access for the performance of this Consent Decree, the Participating Group shall reimburse EPA for costs incurred in the exercise of such powers, provided such costs are not inconsistent with the NCP.

B. After the effective date of this Consent Decree, the Participating Group shall assure that the United States, the City, the State, and their representatives, including contractors, shall have access at all reasonable times to any property within the Site that is necessary for the performance of the Work of this Consent Decree and that is owned or controlled by any member of the Participating Group. In the event any members of the Participating Group transfer some or all of such property located within the boundaries of the Site to a third party after the effective date of this Consent Decree, that entity shall: (a) assure that the instrument effecting the conveyance or transfer of title appends a copy of this Consent Decree, the 1988 ROD and the listing of the Site on the NPL; and

(b) use its best efforts to assure access under reasonable conditions to the property of the third party.

C. Any Party desiring to obtain access pursuant to Subsection XIV.B shall notify the appropriate Party's Project Coordinator at least 24 hours in advance; provided, however, that EPA may determine in accordance with CERCLA Section 104(e) that less notice by EPA is necessary. Any such Party who obtains access shall comply with all applicable provisions of the Worker Health and Safety Plan for that activity.

D. Access under this Section shall be permitted for purposes of conducting any activity authorized by this Consent Decree, including, but not limited to:

1. Monitoring the progress of activities taking place;

2. Verifying any data or information submitted to EPA;

3. Conducting investigations relating to contamination at or near the Site;

4. Obtaining samples at or near the Site; and

5. Inspecting and copying records, operating logs, contracts, or other documents utilized to assess the Participating Group's compliance with this Consent Decree.

E. Nothing in this Section shall limit the access authority of EPA under Section 104(e) of CERCLA.

XV. ASSURANCE OF ABILITY TO COMPLETE WORK

Following review of information submitted to EPA by the Participating Group, the United States has determined that the

members of the Participating Group have demonstrated their financial ability to complete the Work. Each year, by the anniversary of the effective date of this Decree, each member of the Participating Group shall provide to EPA a copy of its annual report which confirms its continuing financial ability to complete the Work.

XVI. COMPLIANCE WITH APPLICABLE LAWS AND REGULATIONS

A. Except as provided in Subsection XVI.B, all activities undertaken by the Participating Group and the City pursuant to this Consent Decree shall be undertaken in accordance with the requirements of all applicable federal and state laws and regulations, including Title 45 and 49 of the Arizona Revised Statutes, and all "applicable" and "relevant and appropriate" federal and state environmental requirements as provided in Section 121(d) of CERCLA, 42 U.S.C. § 9621(d) ("ARARs"). EPA, the State and the City have determined that the obligations and procedures set forth in this Consent Decree comply with CERCLA and Arizona Revised Statutes Titles 45 and 49.

B. Pursuant to 42 U.S.C. § 9621(e), as interpreted by the NCP, no federal, State, or local permits are necessary for the Work that is performed entirely on the Site; provided, if the State issues permits in a timely manner, the Participating Group and the City shall obtain and comply with State permits required under Title 45 of the Arizona Revised Statutes; and, provided further, if the City issues permits in a timely manner and waives

permit fees, the Participating Group shall obtain and comply with City encroachment and building permits.

C. The Parties recognize that additional ARARs may be identified in the final ROD for the Site. No additional ARARs will be identified in connection with the treatment criteria set forth in Section XX, unless EPA determines that additional ARARs are necessary to protect human health and the environment. The State reserves all rights pursuant to CERCLA Section 121(f) to participate in the selection of additional ARARs. If the United States or the State proposes that this Decree be modified to incorporate any additional ARARs and such incorporation requires Additional Work, such proposal shall be included in the negotiations among the Parties described in Subsection IX.C.

XVII. SUBMISSIONS OF DOCUMENTS, SAMPLING AND ANALYSIS

A. The Participating Group shall make the results of sampling and/or tests or other data generated by or on behalf of the Participating Group pursuant to this Consent Decree available to EPA, the State and the City in compliance with the provisions of this Consent Decree. All Parties shall make available to all other Parties the results of sampling and/or tests or other data generated under this Consent Decree by the Parties, or by individuals or entities acting on their behalf.

B. 1. Under the provisions of Section 104(e) of CERCLA, EPA explicitly reserves the right to observe the Work as it is performed. In addition, upon the reasonable request by

EPA, the State or the City, the Participating Group shall allow split or replicate samples to be taken by EPA, the State, or the City, and/or their authorized representatives of any samples collected by the Participating Group or anyone acting on the Participating Group's behalf pursuant to the implementation of this Consent Decree. Similarly, upon the reasonable request of any member of the Participating Group, EPA, the State or the City shall allow split or replicate samples to be taken by the member of the Participating Group or the member's authorized representative of any samples collected by EPA, the State or the City or anyone acting on EPA's, the State's, or the City's behalf pursuant to the implementation of this Consent Decree.

2. Any sampling plan developed pursuant to this Consent Decree shall include the schedule for its implementation.

3. If any changes to, including additions to, any approved sampling schedule are necessary, the Participating Group shall request approval from EPA at least 7 days in advance of the rescheduled sampling event. EPA shall respond to such request in a timely manner.

4. In the event that unexpected conditions preclude notification pursuant to Subsection XVII.B.3, the Participating Group shall orally notify the EPA Project Coordinator in advance of any changes to applicable sampling schedules. Within 72 hours after such notification, the Participating Group shall submit to EPA a written description of

the unexpected conditions it believes warranted the change and a description of the change.

5. Disposal of the residuals and samples generated by the Participating Group is the responsibility of the Participating Group and disposal shall be in accordance with all applicable federal and state requirements.

C. Within 30 days of EPA's or the State's request, the Participating Group agrees to provide EPA or the State with existing technical data and technical information generated after the effective date of this Consent Decree relating to the Work, with the exception of any documents, records or information that are subject to a claim of attorney work product or attorney-client privilege and are identified as such and are determined to be entitled to the attorney work product or attorney-client privilege in accordance with procedures set forth in Subsection XVIII.A.2, including:

1. Final technical reports, letter reports, work plans, documents, records, files, memoranda, status reports, and written material developed using any source, including EPA, relating to the Work;

2. Final technical maps, computer generated graphics, charts, tables, data sheets, geologic cross-sections, lithologic logs, graphs, photographs, slides, or other such material developed relating to the Work; and

3. Computerized technical data and information relating to the Work, including creation, sorting, display and organization of a data base.

D. All data, factual information, and documents submitted to or obtained by EPA or the State pursuant to this Consent Decree shall be subject to public inspection at the respective EPA or State offices. The Parties explicitly recognize that the provisions of Section 104(e)(7)(F) of CERCLA apply to such data and information generated by the members of the Participating Group. Members of the Participating Group reserve their rights to assert a confidentiality claim for all other information pursuant to 18 U.S.C. § 1905 and 40 C.F.R. Part 2, and any applicable state laws and regulations. The provisions of this Section shall not constitute a waiver of any applicable claims of attorney work product or attorney-client or other legal privilege.

E. Within 90 days of the effective date of this Decree, the Participating Group shall propose to EPA a plan and system to manage and organize data collected pursuant to this Decree. Upon approval by EPA, the Participating Group shall implement the data management plan and system.

F. Nothing in this Section shall limit EPA's or the State's rights under Section 104(e) of CERCLA, including its rights to inspect raw technical data that are in the possession of the Participating Group and/or its subcontractors and that

have been generated in connection with implementation of the Work.

XVIII. RETENTION OF RECORDS

A. 1. Each member of the Participating Group and the City shall preserve and retain all records and documents (in the form of originals or exact copies, or in the alternative, microfiche of all originals) in its possession or control that relate to ground water or soil contamination or to remedial activity at the Site undertaken pursuant to this Consent Decree or any previous administrative orders, regardless of any document retention policy to the contrary, for no less than either 10 years after the effective date of this Consent Decree or 6 years after the creation of the document, in accordance with Subsection XVIII.B, whichever is later. Until that date, each member of the Participating Group and the City shall preserve the records of their contractors, of their contractors' subcontractors and of anyone else acting on the Participating Group's or the City's behalf at the Site, or shall instruct its contractors, the contractors' subcontractors, and anyone else acting on the Participating Group member's or the City's behalf at the Site to preserve all such records and documents. After the applicable period, each member of the Participating Group and the City shall notify the EPA and the State no later than 60 days prior to its proposed destruction of such documents. Upon a request made by EPA or the State within 30 days of such notice, a

member of the Participating Group or the City proposing to destroy such records shall make the following available to the EPA or the State: (i) originals, microfiche or best copy of any such records (with the exception of any documents, records or other information subject to a claim of attorney work product or attorney-client privilege); and (ii) a list of any such documents, records or other information subject to a claim of attorney work product or attorney-client privilege which need not be provided to EPA or the State.

2. In the event EPA or the State disputes a claim of attorney work product or attorney-client privilege for any document(s), EPA may request submission of documentation supporting such claim of privilege by the Party making such claim. If after reviewing such documentation, EPA or the State continues to dispute the claim of privilege, EPA may petition the Court to review the applicability of the attorney work product and/or attorney-client privilege.

B. All documents which relate to compliance with this Consent Decree created after the 10 year anniversary of the effective date of this Consent Decree shall be retained for no less than 6 years after the creation of the document. At each succeeding 10 year anniversary, each member of the Participating Group may destroy any documents retained for a minimum of 6 years after either providing 60 days' prior written notice to EPA and the State of the intended destruction of such document or providing EPA and the State with the original, microfiche or best

copy of such documents in its possession if requested by EPA or the State within 30 days of receipt of notice from EPA or the State.

XIX. CLAIMS AGAINST THE FUND

A. In consideration of the entry of this Consent Decree, the Participating Group agrees not to assert any claims directly or indirectly against the Hazardous Substance Superfund under any provisions of law, including, but not limited to, Sections 111 and 112 of CERCLA, 42 U.S.C. §§ 9611, 9612, and Section 106(b)(2), 42 U.S.C. § 9606(b)(2), concerning Work performed by the Participating Group under this Consent Decree or under previous administrative orders relating to the Site.

B. This Consent Decree shall not be deemed to constitute a preauthorization of a CERCLA claim within the meaning of Sections 111 or 112 of CERCLA or 40 C.F.R. § 300.25(d).

C. In consideration of the entry of this Consent Decree, the City agrees not to assert any claims directly or indirectly against the Hazardous Substance Superfund under any provisions of law, including, but not limited to, Sections 111 and 112 of CERCLA, 42 U.S.C. §§ 9611, 9612, and Section 106(b)(2), 42 U.S.C. § 9606(b)(2), for Work performed by the City as required by this Consent Decree or expenditures made or costs incurred prior to the effective date of this Consent Decree.

XX. TREATMENT CRITERIA

A. Treatment Plant

1. During routine operations of the Plant, all treated water shall meet standards applicable to municipal water supplies pursuant to the Safe Drinking Water Act, 42 U.S.C. §§ 300f-300j-11 (maximum contaminant levels) ("MCLs"), and the treatment goals identified in Table VII-2 of the ROD, except that for perchloroethene and chloroform, the treated water shall not exceed the selected North IBW clean up standards for the final remedy signed by the Regional Administrator on September 12, 1991. The Parties acknowledge that the Plant is designed to treat to drinking water standards influent water with a maximum concentration of 1500 ppb of trichloroethene, and to achieve the treatment goals identified in Table VII-2 of the ROD. ^

2. In the event EPA or the State adopts new MCLs or numeric drinking water aquifer quality standards, respectively, for any of the volatile organic compounds identified in Table VII-2 that are more restrictive than the treatment goals identified in Table VII-2, any Party may petition EPA, with notice to other Parties, to apply the new standard as treatment goals for such compound(s) and the procedures set forth in Section IX shall apply.

3. The Participating Group, the City and the State shall have judicial review of EPA's determination under Subsections XX.A.1 and XX.A.2 if the NCP is amended to provide for such review. The United States does not believe that Section 113(h) of CERCLA, 42 U.S.C. § 9613(h), would have any relevance or application to a judicial proceeding to review EPA's determination pursuant to this Section. However, the Participating Group, the City and the State reserve any rights they believe they may have under Section 113(h) with respect to such a proceeding.

B. Ground Water

Ground water that is within the Zone of Ground Water Contamination shall be subject to extraction and treatment under this Consent Decree. Extraction and treatment shall be required so long as monitoring data demonstrate that concentrations of those hazardous substances identified in Table VII-2 of the ROD for which MCLs have been established (viz., trichloroethene; 1,1,1-trichloroethane; and 1,1-dichloroethene) exceed the MCLs

set forth in Table VII-2, except that for perchloroethene and chloroform, the treated water shall not exceed the selected North IBW clean up standards for the final remedy signed by the Regional Administrator on September 12, 1991. ^

C. Technical Impracticability

1. At the completion of a sustained period of operation of the Ground Water Extraction System and the Plant of not less than 25 years, the Participating Companies may petition EPA to waive compliance with one or more of the MCLs set forth in Subsection XX.B of this Decree for the in-situ concentrations in ground water based upon a demonstration that achievement of specific MCLs is technically impracticable from an engineering perspective.

2. EPA shall review and consider the information in the Petition, and any other relevant information, shall consult with the State and the City and shall make a determination as to (i) whether compliance with any of the MCLs for in-situ ground water shall be waived; (ii) what alternative standards, if any, or other protective measures, if any, shall be established; and (iii) whether any part of the remedial action shall be modified or terminated in whole or in part. EPA's determination shall be consistent with the NCP and any other applicable regulations or guidance. The Participating Group, the

City and the State shall have judicial review of EPA's determination if the NCP is amended to provide for such review. The United States does not believe that Section 113(h) of CERCLA, 42 U.S.C. § 9613(h), would have any relevance or application to a judicial proceeding to review EPA's determination pursuant to this Section. However, the Participating Group, the City and the State reserve any rights they believe they may have under Section 113(h) with respect to such a proceeding.

3. Any technical impracticability waiver that is granted pursuant to this Section shall be subject to the five-year review provision of Section 121(c) of CERCLA, 42 U.S.C. § 9621(c).

4. Nothing herein shall preclude or authorize any members of the Participating Group from petitioning EPA to amend the ROD based on any of the criteria specified in Section 121(d)(4) of CERCLA, 42 U.S.C. § 9621(d)(4).

D. Technology Change

After a period of five (5) years from the transfer of the Plant to the City, any of the Participating Companies may petition EPA, with notice to the City, to approve a change in any technology required to perform any of the Work. Any such petition shall be in writing and indicate (i) the technology to be changed; (ii) the new technology to be utilized; (iii) the advantages of the new technology; (iv) the facts establishing that the new technology shall accomplish, at least as effectively as the Plant, the purposes of the Consent Decree as stated in

Section V, including providing potable water to the City to the extent provided by the Consent Decree, and (v) any other relevant information deemed appropriate to approve or deny the petition. EPA shall have 6 months from receipt of the petition either to approve or deny the petition. Any change approved by EPA shall be set forth in a modification of this Consent Decree approved by the Court. The Participating Companies shall have judicial review of EPA's determination if the NCP is amended to provide for such review. The United States does not believe that Section 113(h) of CERCLA, 42 U.S.C. § 9613(h), would have any relevance or application to a judicial proceeding to review EPA's determination pursuant to this Section. However, the Participating Companies reserve any rights they believe they may have under Section 113(h) with respect to such a proceeding.

XXI. OVERSIGHT COSTS

A. Interim Payments

1. Within 60 days of the end of each calendar quarter, EPA and the State shall each submit to the Participating Companies an accounting of all Oversight Costs incurred by EPA and the State, respectively, during that quarter. Each such quarterly accounting is for informational purposes only, is not a demand for payment, shall not bind EPA or the State or limit EPA's or the State's ability to obtain reimbursement of its Oversight Costs incurred in connection with this Decree, and is not subject to Dispute Resolution.

a. EPA's quarterly accounting shall be compiled by EPA's Region IX office and consist of a copy of EPA's Software Package for Unique Reports ("SPUR") for the appropriate calendar quarter and an estimate of its indirect costs.

b. The State's quarterly accounting shall consist of a compilation of Labor Activity Reports ("LARs") for the previous calendar quarter, a detailed description of the time spent and expenses incurred by the State's consultants and contractors and a summary of the work performed by such consultants and contractors for the previous calendar quarter.

2. Within 90 days of the end of each calendar year, EPA and the State shall each submit to the Participating Companies an annual accounting of all Oversight Costs expended by EPA and the State, respectively, during the preceding calendar year.

a. EPA's accounting shall consist of a SPUR reflecting costs incurred for the previous calendar year, a copy of the narrative summary of work performed contained in each contractor's technical status report for the previous calendar year, a calculation of EPA's estimated indirect costs for the previous calendar year and a summary of any costs incurred by the United States Department of Justice ("DOJ") during the previous calendar year; provided, however, that EPA reserves the right to withhold any documentation that is exempt from release under the Freedom of Information Act, 5 U.S.C. § 552.

b. The State's accounting shall consist of a compilation of LARs for the previous calendar year, a detailed description of the time spent and expenses incurred by the State's consultants and contractors and a summary of the work performed by such consultants and contractors for the previous calendar year.

c. Failure to include all relevant Oversight Costs in any particular annual accounting shall not preclude EPA or the State from seeking such Oversight Costs in any subsequent annual accounting; provided, however, that neither EPA nor the State shall seek Oversight Costs incurred more than six years prior to the date of submission of the annual accounting.

3. In the event that the Defense Contract Audit Agency ("DCAA") agrees to reimburse Motorola for payments made by Motorola under this Section XXI and DCAA requires additional documentation of EPA's oversight costs, EPA will provide such documentation directly to DCAA.

4. Subject to Subsection XXI.A.5, the Participating Companies shall reimburse annually the federal Hazardous Substance Superfund and the State for Oversight Costs in the amount set forth in the annual accounting of EPA and the State within 90 days of the receipt of such accounting unless EPA or the State agrees to a period of time longer than 90 days.

a. As to EPA, checks for Oversight Costs payable to the Hazardous Substance Superfund should reference the Site and be addressed to:

U.S. Environmental Protection Agency - Region IX
ATTN: Superfund Accounting
P.O. Box 360B63M
Pittsburgh, PA 15251

A copy of the transmittal letter and a copy of the check shall be sent to the EPA Project Coordinator.

b. As to the State, checks for Oversight Costs payable to the State Water Quality Assurance Revolving Fund should reference the Site and be addressed to:

Fiscal Services Manager
Arizona Department of Environmental Quality
2005 North Central Avenue
Suite 600B
Phoenix, Arizona 85004

A copy of the transmittal letter and a copy of the check shall be sent to the State Project Coordinator.

c. Payments made pursuant to this Subsection shall not constitute an admission by the Participating Companies of any liability for payments of Oversight Costs and shall not preclude them from seeking review of such costs as set forth in Subsection XXI.A.5 below.

5. Pursuant to Section XXI (Oversight Costs) and Section XXV (Dispute Resolution), the Participating Companies may dispute EPA's or the State's annual accounting. With respect to EPA's accounting, the Participating Companies may contest only that such accounting includes claims for costs not actually incurred or incurred in a manner inconsistent with the NCP. The

Participating Companies shall raise any dispute of an annual accounting within one calendar year of EPA's or the State's original request for payment of such costs. In the event that it is determined that the Participating Companies overpaid Oversight Costs, any such amount overpaid shall be credited toward payment of Oversight Costs claimed by EPA or the State, respectively, in a subsequent accounting.

B. Final Payment

1. Within 180 days of EPA's issuance of a Certification of Completion of Remedial Action pursuant to Section XXXIX (Termination and Satisfaction), EPA and the State each shall provide the Participating Companies with a final demand for payment of all unreimbursed Oversight Costs incurred pursuant to this Decree. EPA's final accounting shall consist of the final SPUR, the final accounting of indirect costs and all the narrative summaries of technical status reports not previously submitted. The State's final accounting shall consist of a final compilation of all LARS, a final detailed description of time spent and expenses incurred by the State's consultants and contractors and a final summary of the work performed by such contractors and consultants that has not been previously submitted.

2. Within 90 days of receipt of EPA's or the State's final demand for payment, the Participating Companies either shall pay to the United States or the State all demanded costs, reduced by the amount of any credits due pursuant to

Subsection XXI.A above, or pay all uncontested costs and invoke Dispute Resolution pursuant to Subsection XXI.A.4 above. If the Participating Companies invoke dispute resolution, the Participating Companies shall identify each cost contested and the basis for the objection. Within 30 days of invoking dispute resolution, the Participating Companies shall deposit an amount of money equal to the contested EPA costs and an amount of money equal to the contested State costs into separate interest-bearing escrow accounts designated for EPA and State disputed costs, respectively. If it is determined in dispute resolution that the Participating Companies are required to pay less than the full amount of EPA's or the State's final demand for payment, the difference between the amounts paid into the respective escrow accounts by the Participating Companies and the amounts determined to be owed by the Participating Companies in the dispute resolution shall be released to the Participating Companies, including interest earned on the difference minus escrow account fees. The remaining balances in the escrow accounts shall be released to the United States and the State, respectively. If it is determined in dispute resolution that the Participating Companies are required to pay the full amount of EPA's or the State's final demanded payment, all money in the escrow accounts, including any interest accrued thereon, minus escrow account fees, shall be released to the United States or the State.

XXII. PRIORITY OF CLAIMS

In any contribution action for costs of the Work or Response Actions performed under this Consent Decree, the rights of any member of the Participating Group shall be subordinate to the rights of the United States or the State, pursuant to Section 113(f)(3)(C) of CERCLA, 42 U.S.C. § 9613(f)(3)(C).

XXIII. STIPULATED PENALTIES

A. General Provisions

1. Stipulated penalties shall apply to noncompliance with the requirements of this Consent Decree, unless the noncompliance is excused pursuant to the Force Majeure provisions of Section XXIV, or the Party responsible for enforcing the requirements waives or reduces any penalties associated with the alleged violation.

2. Stipulated penalties shall accrue as follows: (a) for failure to perform any requirement of this Consent Decree for which a deadline is specified, penalties shall begin to accrue on the first day after the deadline, and (b) for any other violation of this Consent Decree, penalties shall begin to accrue on the first day after the Party receives written notice from EPA of such violation.

3. a. Except as provided in Subsection XXIII.A.3.b, demands and enforcement actions for stipulated penalties under this Decree shall be undertaken exclusively by EPA.

b. In accordance with CERCLA Section 121(e)(2) and 121(f), the State may demand, and take enforcement action before this Court to obtain, stipulated penalties under this Section if a Party's non-compliance giving rise to stipulated penalty liability violates the applicable requirements of Title 45 or 49 of the Arizona Revised Statutes or the substantive permitting requirements of Title 45 of the Arizona Revised Statutes; provided, however, that such enforcement action is subject to prior approval by EPA and notice to other Parties as described in Subsection XXV.C; provided further that the State shall enforce Title 45, Chapter 2, Article 9 of the Arizona Revised Statutes as to the City pursuant to State laws and procedures.

c. In the event EPA takes enforcement action, all stipulated penalties collected shall be remitted to EPA pursuant to this Section. In the event the State takes an enforcement action under Subsection XXIII.A.3.b, all penalties shall be remitted to the State pursuant to this Section.

d. In the event that EPA and the State jointly take an enforcement action described in Section XXIII, all written communications from EPA and the State relating to such joint enforcement action shall be executed by both EPA and the State representatives. In the event such a joint enforcement action results in stipulated penalties, one-half of all penalties payable shall be remitted to the State and one-half shall be remitted to EPA pursuant to Subsection XXIII.A.4.

4. a. Stipulated penalties paid to EPA under this Section shall be paid by certified or cashier's check made payable to the Hazardous Substance Superfund and addressed to:

U.S. Environmental Protection Agency -- Reg. IX
ATTN: Superfund Accounting
P.O. Box 360863M
Pittsburgh, PA 15251

b. Stipulated penalties under this Section payable to the State for violations of Title 45 of the Arizona Revised Statutes shall be paid by certified or cashier's check made payable to Arizona Department of Water Resources and addressed to:

ADWR, Legal Division
c/o Chief Enforcement Attorney
15 S. 15th Avenue
Phoenix, Arizona 85007

c. Stipulated penalties under this Section payable to State for violations of Title 49 of the Arizona Revised Statutes shall be paid by certified or cashier's check made payable to Arizona Water Quality Assurance Revolving Fund and addressed to:

Fiscal Services Manager
Arizona Department of Environmental Quality
2005 North Central Avenue
Suite 600B
Phoenix, Arizona 85004

d. Except as provided in Subsection XXIII.E, stipulated penalties shall be paid within 30 days of receipt of demand. Copies of the check and the letter forwarding the check, including a brief description of the triggering event, shall be submitted to EPA and the Department of Justice, or the

State, where applicable, in accordance with Section XXVI (Form of Notice), herein.

5. SRP or the City, respectively, shall be liable for any stipulated penalties arising as a result of its acts or omissions incurred pursuant to Work conducted by or under the direction of SRP or the City. The Participating Companies are jointly and severally liable for stipulated penalties imposed pursuant to the provisions of this Section for any other acts or omissions under this Consent Decree; provided, however, that the total amount due and payable for each day of each violation shall not exceed those limits specified in this Section.

B. Participating Group

1. Progress and Monitoring Reports

a. If a progress report described in Subsection X.A is not submitted in compliance with this Consent Decree, the Party responsible for such submittal shall be subject to a stipulated penalty of $500 per day.

b. If a monitoring report described in Appendix B is not submitted in compliance with this Consent Decree, the Party responsible for such submittal shall be subject to a stipulated penalty of $1,000 per day.

2. All Other Requirements

a. If any requirement of this Consent Decree, other than a reporting requirement described in Subsection XXIII.B above, is not satisfied by compliance with this Consent Decree, the Party responsible for satisfying such

requirement shall be subject to stipulated penalties as governed by the applicable provision(s) of this Section; provided, however, that the Participating Companies and the City shall each be responsible for one-half of any stipulated penalties associated with submission of the O&M Plan for the Plant in accordance with Subsection XXIII.D. As used herein, compliance with this Consent Decree includes compliance with any reports, plans, specifications (including discharge or emission limits), performance and submission dates, and schedules, including appendices and attachments thereto, approved by EPA and incorporated into this Consent Decree pursuant to Subsection X.B.

b. Stipulated penalties for completion of the Ground Water Monitoring Program, submission of the Report of the Completion of the Plant, and the Supplemental Study shall be as follows:

Period of Failure to Comply	Penalty Per Violation Per Day
First through 14th calendar day	$ 5,000
Fifteenth through 30th calendar day	7,500
Thirty-first calendar day and beyond	20,000

c. Stipulated penalties for all other reports required by Appendix B, the Phase A Monitoring summary report described in Subsection VII.B.1.c, data gathering activities pursuant to Appendix B, land acquisition, Treatment Plant design, violations of Arizona Revised Statutes Titles 45 and 49 or for any other violation of this Consent Decree shall be as follows:

Period of Failure to Comply	Penalty Per Violation Per Day
First through 7th calendar day	$ 1,000
Eighth through 14th calendar day	3,000
Fifteenth through 30th calendar day	10,000
Thirty-first day and beyond	15,000

C. City

1. Stipulated penalties in the amounts set forth in Subsection XXIII.B.2.c above shall be applicable to:

a. Submission of the Design of the Plant according to the schedule set forth in Subsection VIII.D;

b. Noncompliance with, to the extent that they are specifically set forth in the O&M Plan, Plant operating procedures, the preventive maintenance schedule, materials specifications, and the suppliers' life cycle and replacement schedule for Plant equipment.

c. Violations of Arizona Revised Statutes Titles 45 and 49, including the failure to put treated ground water to beneficial use as required in Subsection VII.D, except as provided in Subsection XXIII.A.3.b.

2. Stipulated penalties for exceeding the Plant treatment criteria set forth in Subsection XX.A. shall be determined as follows:

a. Noncompliance with the treatment criteria shall be established based upon a rolling, 90 day time-weighted average to be calculated according to Appendix C of this Consent Decree.

b. In the event the time-weighted average exceeds the treatment criteria, the City shall be considered out of compliance and stipulated penalties shall apply to each day there was an actual exceedance during the 90 day period for which the average was calculated. An actual exceedance indicated by a representative sample of treated water shall be presumed to continue on all subsequent days until testing of a subsequent sample shows that the treated water met the treatment criteria.

c. Stipulated penalties for a violation under this Subsection shall apply in the following amounts:

Period of Failure to Comply	Penalty Per Day of Violation
Operational days prior to City receiving results of 1st sample indicating exceedance	$ 100
7 operational days after 1st results showing exceedance	$ 500
8th operational day after 1st results showing exceedance and beyond	$1,000

3. Except as provided in Subsections XXIII.C.1, XXIII.C.2 and XXIII.D, no stipulated penalties shall be applicable to requirements for which the City is responsible under this Consent Decree. EPA reserves the right to assess civil penalties against the City in accordance with Section 109 of CERCLA only for requirements for which stipulated penalties are not provided in Subsections XXIII.C.1, XXIII.C.2 and XXIII.D.

4. The stipulated penalties in Subsection XXIII.C.2 shall be the exclusive mechanism for the assessment and collection of penalties for exceeding the Plant treatment

criteria set forth in Subsection XX.A unless EPA elects in lieu of demanding such stipulated penalties, to seek civil penalties under the Safe Drinking Water Act.

5. The Parties acknowledge that the Plant is designed to treat to drinking water standards influent water with a maximum concentration of 1500 ppb of trichloroethene, and to achieve the treatment goals identified in Table VII-2 of the ROD.

D. Participating Companies and City

Stipulated penalties as set forth in Subsection XXIII.B.2.c shall be applicable to submission of the O&M Plan for the Plant, provided that the City shall be responsible for one-half, and the Participating Companies for one-half, of any stipulated penalties assessed for a violation of Subsection VIII.F of this Consent Decree. Submission of an O&M Plan containing alternative provisions about which the Participating Companies and the City are unable to reach agreement shall not in itself constitute a violation of Subsection VIII.F.

E. The Parties may dispute EPA's or the State's right to the stipulated penalties demanded pursuant to this Section in accordance with the dispute resolution procedures of Section XXV. Penalties need not be paid during the dispute resolution period. If the Court does not adopt the enforcing Party's Final Statement of Position, no penalties shall be due. If the enforcing Party's Final Statement of Position is adopted by the Court, such Party shall have the right to collect all penalties that accrued during the dispute.

F. Except as provided in Subsection VI.C, the stipulated penalties established in this Consent Decree shall be the exclusive mechanism for the assessment and collection of penalties for noncompliance with the provisions subject to stipulated penalties, unless EPA elects, in lieu of demanding such stipulated penalties, to seek civil penalties under CERCLA.

XXIV. FORCE MAJEURE

A. The Participating Group and the City shall perform all the requirements of this Consent Decree according to the time limits set out in the Consent Decree and referenced supporting documents or any modification thereto unless their performance is prevented or delayed by events that constitute a force majeure event.

B. For purposes of this Consent Decree, force majeure is defined as any event arising from causes beyond the control of the Party required to perform an obligation under this Consent Decree, or its contractors, subcontractors or consultants, which delays or prevents the performance of such obligation and could not have been overcome or prevented by such Party's efforts. Such Party shall have the burden of proving that an event constituted force majeure for the purpose of this Consent Decree. When circumstances are occurring or have occurred that delay or may delay the completion of any phase of the Work, whether or not due to a force majeure event, the Party obligated to perform the Work shall notify EPA's Project Coordinator orally within 48

hours and, within 7 days of oral notification to EPA, shall notify the EPA Project Coordinator in writing of: the anticipated length and cause of the delay; which of the tasks are directly affected by the delay; the measures taken and/or to be taken to prevent or minimize the delay; the timetable by which the Party intends to implement these measures; and, as appropriate, all information supporting its position that the event constitutes force majeure.

C. Force majeure shall not include increased costs or expenses of any of the Work to be performed under the Consent Decree or the financial inability of the Participating Group to perform such Work, or the failure of Participating Group or the City to make timely application for any required permits or approvals, and to provide all information required therefor in a timely manner.

D. Following receipt of the written notice described in Subsection XXIV.B, EPA shall advise the Party providing the notice whether it deems the event to constitute force majeure, and if so, it also shall advise the Party of the appropriate modification to the schedules for the Work to be performed. No deadline shall be extended beyond that period of time which is necessary to complete the activities. The Participating Group and the City shall adopt measures to avoid or minimize delay.

E. Failure of the Participating Group or the City to comply with the notice requirements of this Section shall constitute a waiver of any claim that the event constitutes force

majeure under this Consent Decree unless such notice is prevented by a force majeure event.

F. If EPA and the Participating Group or the City do not agree as to whether an event constitutes force majeure or what schedule modification is appropriate, the dispute shall be resolved by the procedures outlined in Section XXV (Dispute Resolution) of this Consent Decree. If it is determined by agreement of the Parties or by the procedures outlined in Section XXV that an event does not constitute force majeure, delays in meeting deadlines for Work arising from such event shall be subject to the provisions of Section XXIII (Stipulated Penalties).

XXV. DISPUTE RESOLUTION

A. Initial Dispute Resolution Procedure

1. As required by Section 121(e)(2) of CERCLA, the Parties to this Consent Decree shall attempt to resolve expeditiously and informally any disagreements concerning implementation of this Consent Decree or any Work required herein. If the disagreement cannot be resolved promptly, then any member of the Participating Group or the City may file a notice of dispute with EPA; provided, however, that disputes involving an alleged violation of Arizona Revised Statutes Titles 45 and 49 and applicable rules shall also be filed with the State. Such period of informal negotiations shall extend for three (3) working days following receipt of such notice by EPA or

the State, unless EPA or the State determines that a longer period is reasonably appropriate. During the informal negotiation period, the Parties may also agree to utilize appropriate Alternative Dispute Resolution ("ADR") mechanisms. At the expiration of the informal negotiation period, the Party deemed responsible pursuant to Subsection XXV.C for enforcing the requirement that is subject to dispute shall issue a written Final Statement of Position on the matter in dispute.

2. An administrative record of any dispute shall be maintained by EPA; provided, however, that if, pursuant to Subsection XXV.C, the State has exclusive enforcement authority regarding such dispute, the State shall maintain the administrative record. The record shall include the written notification of such dispute, any relevant documents generated by any of the Parties or their contractors or agents, any other relevant documents submitted by any of the Parties and any other materials relied upon by the decisionmaker(s). To ensure that the administrative record is complete, the Parties shall, within two (2) working days of the beginning of the informal negotiation period, confer to discuss the documents proposed for inclusion in the administrative record.

3. In the event that a petition relating to the dispute is not filed pursuant to Subsection XXV.B, the dispute shall be deemed resolved in accordance with the Final Statement of Position issued pursuant to Subsection XXV.A and such position shall be deemed effective 3 days following the receipt by the

Party that filed the notice of dispute of such Final Statement of Position; provided, however, such effective date may be extended by the Party issuing the Final Statement of Position for good cause shown.

B. Judicial Resolution

1. In the event that any Party seeks judicial resolution of the dispute, it shall file within 14 days of the effective date of the Final Statement of Position described in Subsection XXV.A a petition with the Court which shall describe the nature of the dispute and include a proposal for its resolution. All other Parties shall have 14 days to respond to the petition.

2. In all disputes involving EPA or the State, the petitioning Party shall have the burden of proof. Any Final Statement of Position reflecting a decision by EPA on selection, extent or adequacy of the response action will be reviewed by the Court on the basis of the administrative record and will be upheld by the Court unless it is arbitrary and capricious or otherwise not in accordance with the law. Any decision by the Court under this Section is subject to appeal.

3. Except as specified in Subsections XXV.A.2 and XXV.B.2 above or otherwise in this Decree, this Decree does not establish the scope of information and materials which may be considered by the Court or standards of any kind for judicial determination of disputes between the Parties.

4. Notwithstanding the provisions in Subsection XXV.B.2 above, if Congress establishes or provides for a different procedure or standard of review, any Party may move the Court to modify Subsection XXV.B.2 to conform to such procedure or standard.

C. Disputes Between EPA and the State

1. The State shall notify EPA of its intent to enforce noncompliance with this Decree involving violations of Titles 45 and 49 of the Arizona Revised Statutes. If EPA approves such action, it shall notify all Parties in writing. If EPA fails to approve such action within 48 hours, the State and EPA shall be considered in informal dispute. In addition, if EPA and the State disagree concerning the State's proposed disposition of any such action, the State and EPA shall be considered in informal dispute. The State and EPA shall attempt to resolve any disagreement expeditiously and informally. At the expiration of an informal negotiation period not to exceed 14 days, EPA shall issue a written Statement of Position.

2. If the State disagrees with EPA's Statement of Position, it shall submit a notice of dispute to EPA within 10 days of issuance of EPA's Statement of Position. The notice of dispute shall be accompanied by a written statement of the issues in dispute, the relevant facts upon which the dispute is based, the factual data, analysis or opinion supporting the State's position and all supporting documentation on which the State relies (hereinafter the "State's Supporting Statement"). The EPA

shall serve EPA's Supporting Statement to the State no later than 10 working days after receipt of the State's Supporting Statement.

3. An administrative record of any dispute under this Subsection shall be maintained by EPA. The record shall include the notice of dispute and the Supporting Statement of both parties, and any other material relied upon by the decisionmaker(s). The record shall be available for inspection by all Parties.

4. The Deputy Director for Superfund, EPA Region IX, and the Assistant Director of the Arizona Department of Environmental Quality (in the case of a Title 49 dispute) or the Deputy Director of the Department of Water Resources (in the case of a Title 45 dispute) shall review the administrative record of the dispute, shall confer with each other concerning the dispute, and shall attempt to reach a joint decision resolving the dispute. If a joint decision is reached, the decision shall be documented by a joint Final Statement of Position, which shall be served on all Parties.

5. If no joint decision is reached under Subsection XXV.C, the Deputy Director for Superfund, U.S. EPA Region IX, shall issue a "Final Statement of Position" within thirty (30) days from receipt of the notice of dispute, which shall be served on all Parties.

6. In the event the State seeks judicial resolution of the dispute, it shall file a petition with the

Court within ten (10) days of receipt of the Final Statement of Position. Judicial review shall be limited to the administrative record and shall be in accordance with the standard of review applicable under CERCLA and any other applicable law. Unless reversed or remanded by the Court, EPA's Final Statement of Position shall be controlling as between EPA and the State.

7. In the event of a dispute between EPA and the State regarding the manner of compliance with this Consent Decree, the dispute shall be resolved as expeditiously as possible. The Participating Group shall cooperate and assist as appropriate in the resolution of the dispute. If the dispute between EPA and the State relates to the manner of performance of the Work, the Participating Group shall, if EPA deems such suspension to be necessary, suspend performance of the affected portion of the Work until the dispute is resolved. If EPA does not deem such suspension to be necessary, the provisions of Subsections XXV.A and B (Dispute Resolution) shall apply. Any delay in performance of the Work caused by or attributable to a dispute between EPA and the State shall constitute force majeure.

XXVI. FORM OF NOTICE

A. When notification to or communication with EPA, the DOJ, the Participating Group, Participating Companies, SRP, the City or the State is required by the terms of this Consent Decree, it shall be in writing, postage prepaid, and addressed as follows:

As to EPA:

EPA Project Coordinator
Indian Bend Wash North Site
Superfund Enforcement Branch (H-7-2)
U.S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105

As to DOJ:

Chief
Environmental Enforcement Section
Environment & Natural Resources Division
U.S. Department of Justice
P.O. Box 7611
Washington, D.C. 20044-7611

As to the Participating Companies:

Donald Netko
Government Electronics Group
Motorola, Inc.
8201 East McDowell Road
Phoenix, Arizona 85254

As to SRP

Manager
Environmental Management Services Department
P.O. Box 52025 Salt River Project
Phoenix, Arizona 85072-2025

As to the State:

Indian Bend Wash Superfund Site, ADEQ Project Manager
Arizona Department of Environmental Quality
2005 N. Central Avenue Suite 400-A
Phoenix, Arizona 85004

Indian Bend Wash Superfund Site, ADWR Project Manager
Arizona Department of Water Resources
15 S. 15th Avenue
Phoenix, Arizona 85007

As to the City:

Indian Bend Wash Project Coordinator
Water Resources Department
City of Scottsdale
9191 E. San Salvador Drive
Scottsdale, Arizona 85258

B. Any submission to EPA for approval pursuant to this Consent Decree shall be made to the address shown above and shall be made by overnight mail or any other equivalent delivery service.

XXVII. MODIFICATION

A. The Parties recognize that information or data gathered or events which occur during the performance of the Work required by this Consent Decree may indicate that modifications to the Work schedule are necessary to accomplish the purpose of Section V and/or Section VII of the Consent Decree. In that event, except as provided in Subsection XXVII.B below, the Participating Group or the City may propose, in writing, extensions to the schedule for the Work's performance. Such proposed extensions shall not be implemented prior to the written approval by EPA. If EPA denies a request for extensions, the denial shall be subject to the dispute resolution process of Section XXV. Any extensions ultimately implemented shall be memorialized in writing by EPA, made available to the Participating Group or the City, and constitute a modification of this Consent Decree.

B. Where a modification to the Work or extension of the Work schedule is proposed as a result of an unanticipated condition in the field or laboratory, and time is of the essence, the modification or extension may be orally proposed to, and approved by, either EPA's on-scene representative, or in his (her) absence, the EPA Project Coordinator. Any such approved modification or extension shall be memorialized in writing and transmitted to EPA within 72 hours by the City or the member(s) of the Participating Group that proposed the modification.

C. Modifications related to the performance of additional Work shall be made in accordance with Section IX (Additional Work).

D. Except as provided in this Consent Decree, there shall be no modification of this Consent Decree without written approval of all Parties to this Consent Decree.

E. Any Party may file with the Court a written modification approved under this Section.

XXVIII. ADMISSIBILITY OF DATA

For the purposes of enforcement of this Decree only, the Parties waive any evidentiary objection to the admissibility of data gathered or generated by any Party in the performance or oversight of the Work under this Decree that has been verified using the Quality Assurance and Quality Control procedures specified in Section XII.

XXIX. EFFECTIVE DATE

This Consent Decree is effective upon the date of its entry by the Court.

XXX. CONTRIBUTION PROTECTION

By entering into this Consent Decree, the Participating Group and the City (to the extent any such Party has any liability to the United States) have resolved their liability to the United States for Covered Matters, as defined in Subsection XXXI.B. Accordingly, pursuant to Sections 113(f)(2) of CERCLA and other applicable federal and state law, no member of the Participating Group or the City shall be liable to other persons or entities for contribution claims regarding Covered Matters as defined in Subsection XXXI.B. Nothing in this Section shall be construed to provide contribution protection to any person not a Party. Each Party expressly reserves its right to bring any appropriate action against persons and entities which are not Parties hereto to recover response costs incurred by it.

XXXI. COVENANTS NOT TO SUE AND RESERVATION OF RIGHTS

A. In consideration of actions which will be performed and payments which will be made by the Participating Group and the City under the terms of the Consent Decree, and except as otherwise specifically provided in this Section, the United States, the State and the City covenant not to sue any

member of the Participating Group or their officers, directors, governing bodies, or any member thereof, employees, or agents, and the United States and the State covenant not to sue the City, for Covered Matters.

B. 1. Except as provided in Subsection XXXI.C below, Covered Matters shall include any and all claims under the statutory provisions set forth in Subsection XXXI.B.2, or any State public health or State environmental common law doctrine relating to ground water contamination in the MAU and LAU at the Site and activities performed by any Party in compliance with this Consent Decree.

2. The statutory provisions described in Subsection XXXI.B.1 are as follows:

a. Sections 106 and 107 of CERCLA, 42 U.S.C. §§ 9606 and 9607; Section 7003 of the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. § 6973; Section 1431 of the Safe Drinking Water Act, 42 U.S.C. § 300i.

b. Arizona Revised Statutes Titles 45 and 49 except, with respect to the City, Chapter 2, Article 9 of Title 45.

c. Any City ordinance applicable to the releases of hazardous substances into the ground water that are the subject of this Consent Decree.

3. Covered matters shall also include claims against the City under Sections 106 and 107 of CERCLA, 42 USC § 9606 and 9607, and Arizona Revised Statutes Title 49,

Chapter 2, Article 5, and Title 49, Chapter 6 relating to ground water or soil contamination on or emanating from the parcel acquired pursuant to Subsection VII.B.3.a existing prior to transfer of title to the City.

C. "Covered Matters" do not include:

1. Actions before this Court to enforce compliance with the Consent Decree;

2. a. Claims under CERCLA or the State Water Quality Assurance Revolving Fund for any response costs incurred prior to the effective date of this Consent Decree by the United States and the State, except for costs reimbursed pursuant to Section XL.

b. Claims under CERCLA or the State Water Quality Assurance Revolving Fund for response costs incurred subsequent to the effective date of this Consent Decree by the United States, the State, and the City except for the following costs, which are Covered Matters:

i. Response Costs described in Subsection VI.C (Takeover of Work) and Oversight Costs as described in Section XXI; and

ii. Costs incurred by the City for which the City is expressly responsible under this Consent Decree.

3. Claims based on the past, present, or future disposal of hazardous substances at any locations outside of the Site;

4. Claims based on criminal liability;

5. Claims based on liability for damage to natural resources as defined in CERCLA;

6. Claims based on liability for any violations of federal or state statutes or City ordinance that occur during implementation of the Work.

7. Claims for remedial action with respect to either soil or ground water in the Upper Alluvial Unit ("UAU") at the Site.

8. Any matters for which the United States is owed indemnification under Section XXXII hereof.

9. Claims for damage to federal, State or City property.

10. Claims for hazardous substances removed from the Site.

11. Claims for Response Costs incurred or remedial actions necessary pursuant to the five-year review in accordance with Section 121(c) of CERCLA.

12. Claims arising from any injuries or damages to persons or property resulting from any Party's acts or omissions or the acts or omissions of its officers, directors, governing bodies, or any member thereof, employees, agents, receivers, trustees, successors, assigns, contractors, subcontractors, or any other person acting on its behalf in carrying out the Party's obligations under this Consent Decree, except as otherwise provided in Section XXXII.

D. Notwithstanding any other provision in this Section, the covenant not to sue described in Subsection XXXI.A does not include the initiation of proceedings in this action or in a new action: (a) for issuance of an order seeking to compel the Participating Group or the City to perform CERCLA response actions in addition to Work required by this Consent Decree or to reimburse EPA and the State for costs of response; or (b) for appropriate actions under Section 300i of the Safe Drinking Water Act, where liability arises under the following conditions:

1. For proceedings prior to certification pursuant to Section XXXIX below, (a) conditions at the Site, previously unknown, to the United States are discovered after the entry of this Consent Decree, or (b) information is received, in whole or in part, after entry of this Consent Decree, and those previously unknown conditions or that information indicate(s) that the remedial action is not protective of human health and the environment; and

2. For proceedings subsequent to certification pursuant to Section XXXIX below, (a) conditions at the Site previously unknown to the United States are discovered after the certification of completion by EPA, or (b) information is received, in whole or in part, after certification of completion by EPA; and those previously unknown condition(s) or that information indicate(s) that the remedial action is not protective of human health and the environment.

E. 1. In addition, each member of the Participating Group and the City covenants not to sue any other member of the Participating Group or the City for:

a. Covered Matters, including performance of the Work and any obligation to pay for the Work, except as to (1) any agreements among them relating to performance under this Consent Decree and (2) the extent that the Participating Companies are in substantive default of their obligations to make payments under Subsections VII.B.5.b and VII.B.3.b of this Consent Decree.

b. Claims for contribution under CERCLA § 113, 42 U.S.C. § 9613, relating to:

i. ground water contamination in the MAU and LAU at the Site;

ii. activities performed by any Party in compliance with this Consent Decree; or

iii. claims relating to ground water or soil contamination on or emanating from the parcel acquired pursuant to Subsection VII.B.3.a existing prior to transfer of title to the City.

2. Nothing in Subsection XXXI.E.1 shall be construed to preclude any member of the Participating Group or the City from bringing the actions or claims described in Subsection XXXI.C.

3. Notwithstanding any other provision of this Consent Decree, the City shall have the right to enforce

independently the Participating Companies' obligations to pay to the City the costs of operation and maintenance of the Plant and to pay the costs of design of the Plant in excess of the City's obligation to pay such costs. In any such enforcement action, Arizona law shall govern and the prevailing Party shall be entitled to receive from the other Party reasonable attorneys' fees and reasonable costs and expenses, determined by the court sitting without a jury, which shall be deemed to have accrued on the commencement of such action.

F. Except for future liability, the covenants not to sue set forth in this Section shall take effect on the effective date of this Consent Decree and shall be effective during the performance of the Work as to any Party that is in full compliance with its obligations under this Consent Decree. With respect to future liability for Covered Matters, the covenants not to sue shall take effect upon EPA's issuance of a Certification of Completion of Remedial Action as set forth in Section XXXIX. All covenants not to sue shall remain in effect following termination of this Consent Decree.

G. Nothing in this Consent Decree shall constitute or be construed as a release or covenant not to sue regarding any claim or cause of action against any person as defined in Section 101(21) of CERCLA, or other entity not a Party to this Consent Decree for any liability it may have arising out of or relating to the Site.

H. The Parties hereto agree that the United States and the State shall be under no obligation to assist any Party in any way in defending against suits for contribution which allege liability for matters covered by this covenant not to sue by persons or entities that have not signed this Consent Decree, except that the United States shall certify that any Work performed in compliance with this Consent Decree is consistent with the NCP.

I. This Consent Decree supersedes all previous Administrative Orders issued by EPA to any member of the Participating Group prior to the effective date of this Decree, pursuant to CERCLA Section 106, or the Resource Conservation and Recovery Act Section 3013, 42 U.S.C. 6934, regarding remedial action and remedial investigation at the Site with the exception of the following provisions of previous administrative orders, which shall survive and remain in effect: Section XXV of Order No. 84-01; Section XXVIII of Order No. 86-06; Sections XV and XVI of Order No. 87-05; Section XVI and the fourth and fifth paragraphs of Section XV of Order No. 89-02; subject to Section XIX of this Consent Decree, paragraph No. 6 of Section III of Order No. 84-04; and Section XVI and the fourth and fifth paragraphs of Section XV of Order No. 89-12. Except as to uncollected Oversight Costs, the provisions of Order No. 89-15 as amended and docketed as Amended Order No. 90-05, are hereby withdrawn and of no legal effect as to the members of the Participating Group. In addition, except as to uncollected

Oversight Costs, EPA hereby determines that the Participating Companies have satisfied all of their respective obligations under Order Nos. 84-12, 87-05, 86-06, 84-01, and 89-02 and 84-04, and that the Work performed pursuant to such Orders is consistent with the NCP.

J. The Parties recognize that the Participating Group is entering into this Consent Decree as a compromise of disputed claims and that the Participating Group does not admit, accept, or intend to acknowledge any liability or fault with respect to any matter arising out of or related to the Site. The Participating Group does not admit to any allegation made in the Complaint, except as provided in Section II of this Consent Decree. The Participating Group expressly reserves all rights and defenses that it may have with respect to any factual or legal claims or determinations made herein by EPA, except the Participating Group does not contest the entry of this Consent Decree and agrees to be bound by its terms.

K. Except as provided in this Consent Decree, this Consent Decree shall not be deemed to limit the authority of EPA to perform response actions under Sections 104 or 106 of CERCLA, 42 U.S.C. §§ 9604, 9606, or under any other federal response authority.

L. The United States expressly reserves all rights and defenses that it may have, including the right both to disapprove submissions pursuant to Section X and to request Additional Work pursuant to Section IX.

XXXII. INDEMNIFICATION

A. Each member of the Participating Group shall indemnify and hold the United States and the State harmless for any claims arising from any injuries or damages to persons or property resulting from any of each member's acts or omissions, or the acts or omissions of its officers, directors, governing bodies, or any member thereof, employees, agents, receivers, trustees, successors, assigns, contractors, subcontractors, or any other person acting on its behalf in carrying out its obligations under this Consent Decree. In the event of any suit alleging such injuries or damages, the United States or the State will defend in good faith against such suit to the extent consistent with the applicable law; provided, however, that there shall be no judicial review of any efforts made by the United States or the State to defend against such suit.

B. A Party indemnified under Subsection XXXII.A. shall provide notice to each member of the Participating Group of any such suit within 45 days of its service upon such Party. Rights to intervene in any such suit shall be governed by the Federal Rules of Civil Procedure. A Party indemnified under Subsection XXXII.A shall provide each member of the Participating Group an opportunity to confer with it before settling any such suit.

C. The Participating Companies agree to indemnify, defend and hold the City harmless for claims arising from discharges into McKellips Lake of water from the Treatment Plant

with levels of contamination above the levels identified in Section XX of this Decree; provided, however, that the Participating Companies will not indemnify the City for any claims arising from discharges resulting from the City's negligent operation of the Plant or failure to comply with the applicable terms of the Plant Operations and Maintenance Plan. The City shall provide notice to the Participating Companies of any such claim within ten (10) days of receipt of a notice of claim filed by the plaintiff pursuant to Arizona Revised Statutes § 12-821 or service of a complaint upon the City. Within thirty (30) days of the date of the City's notice to the Participating Companies, the Participating Companies shall inform the City of whether they intend to defend the claim on behalf of the City or do not intend to defend against the claim because they have a good faith belief that the discharge resulted from the City's negligent operation of the Plant or a failure of the City to comply with the applicable terms of the Operations and Maintenance Plan. If the Participating Companies agree to defend against such claims, they shall have sole control over the defense, including any decision whether to settle, compromise or litigate any claim covered by this indemnity. Nothing shall prohibit the City from taking any actions to protect the City's legal interest prior to notice from the Participating Companies that they intend to defend against the claim. The City will cooperate fully with the Companies' defense of any such claims

and will make its employees available under reasonable terms and conditions without cost to the Companies.

XXXIII. WAIVER OF CLAIM SPLITTING DEFENSE

The members of the Participating Group recognize and acknowledge that the settlement embodied in this Consent Decree is only a partial resolution of issues related to the remedy of conditions at the Site and, except as otherwise provided in this Consent Decree, does not address certain claims against the Participating Group for Response Costs incurred by Plaintiffs at the Site. The members of the Participating Group hereby waive the defenses of res judicata, collateral estoppel, claim-splitting, issue preclusion, and claim preclusion, with respect to (i) the Plaintiffs' right to pursue subsequent claims under the statutes described under Subsection XXXI.B regarding Participating Group members' responsibility for any remedial action which may be necessary; or (ii) Response Costs incurred at the Site that are not a Covered Matter under Section XXXI of this Consent Decree.

XXXIV. COMMUNITY RELATIONS

The Parties shall cooperate with EPA in providing information to the public. As requested by EPA, the members of the Participating Group shall participate in the preparation of all appropriate information disseminated to the public and in

public meeting(s) which may be held or sponsored by EPA to explain activities at or concerning the Site.

XXXV. LODGING AND PUBLIC PARTICIPATION

Pursuant to Section 122(d) of CERCLA, 42 U.S.C. § 9622(d), and 28 C.F.R. § 50.7, this Consent Decree will be lodged with the Court for 30 days, and the United States shall publish a Notice of Availability of review to allow public comment prior to entry by the Court. The United States will file with the Court a copy of any comments received and the responses of the United States to such comments.

XXXVI. OTHER CLAIMS

With respect to any person, firm, partnership, corporation, or other entity not a Party to this Consent Decree, nothing in this Consent Decree shall constitute or be construed as a covenant not to sue by any Party with respect to, nor as a release from, any claims, causes of action, or demands in law or equity.

XXXVII. CONTINUING JURISDICTION

The Court specifically retains jurisdiction over both the subject matter of and the Parties to this action for the duration of this Consent Decree for the purposes of issuing such further orders or directions as may be necessary or appropriate to construe, implement, modify, enforce, terminate, or reinstate

the terms of this Consent Decree or for any further relief as the interest of justice may require.

XXXVIII. REPRESENTATIVE AUTHORITY

Each undersigned representative of each Party to this Consent Decree certifies that he or she is fully authorized by the Party to enter into and execute the terms and conditions of this Consent Decree, and to legally bind such Party to this Consent Decree.

XXXIX. TERMINATION AND SATISFACTION

A. Certification of Completion of the Treatment Plant

1. The Participating Companies shall submit to EPA, with notice to the City, a Report of Completion of the Treatment Plant documenting completion and performance in accordance with applicable design specifications. Such report shall be submitted following completion of construction and start-up of the Plant, as set forth in Subsection VIII.H, and following approval by the City's consulting Plant design engineer that the Plant meets applicable performance and design specifications.

2. Upon receipt of the Report of Completion of the Treatment Plant, EPA shall review the Report and the remedial actions taken. EPA shall issue a Certification of Completion of the Treatment Plant to the Participating Companies, with notice to the City, upon a determination that the Plant has been

constructed and performs in accordance with requirements set forth in Subsection VII.B.3. If EPA fails to issue the requested Certification within 60 days following submittal of a Report of Completion, the dispute resolution procedures in Section XXV shall apply.

B. Certification of Completion of Remedial Action

1. When the Participating Companies are able to demonstrate that the ground water in the MAU and LAU meets the treatment criteria set forth in Subsection XX.B or if the Participating Companies determine that Subsection XX.C (Technical Impracticability) applies, they shall submit to EPA and the State, with notice to the City, a Report of Completion of Remedial Action and supporting documentation, which summarizes the Work done and the remediation goals achieved.

2. Upon receipt of the Report of Completion of Remedial Action, EPA shall review the Report, any supporting documentation, and the remedial actions taken. EPA shall issue a Certification of Completion of Remedial Action to the Participating Companies, with notice to the City, upon a determination that the Participating Group has demonstrated compliance with the requirements of this Consent Decree to EPA's satisfaction at the time EPA reviews the Report of Completion of Remedial Action. If EPA fails to issue the requested Certification within 120 days, the dispute resolution procedures in Section XXV shall apply.

3. Upon the filing of EPA's Certification of Completion of the Remedial Action pursuant to the preceding Subsection, and a showing that the other terms of this Consent Decree have been complied with, this Consent Decree shall be terminated upon motion of any Party.

C. In the event that additional Work is undertaken to remediate the MAU and LAU in accordance with the procedures set forth in Section IX (Additional Work), and that such additional Work supersedes all or part of the Work required by Section VII of this Consent Decree, the superseded obligations of Section VII of this Consent Decree shall be deemed satisfied, and the Participating Group shall terminate such superseded Work.

D. Termination of this Consent Decree shall not alter the provisions of Section XXX (Contribution Protection) and Section XXXI (Covenants Not to Sue and Reservation of Rights).

XL. REIMBURSEMENT

A. The Participating Companies having received an accounting from the State of costs associated with the Arizona Department of Health Services Grant No. 2802-000000-7-3-ZA-5311 to the City of Scottsdale for TCE removal from well No.6, shall pay the sum of $175,000 to the State Water Quality Assurance Revolving Fund in full satisfaction of claims for recovery of such costs. If the Participating Companies pay the full amount within forty-five (45) days of entry of this Consent Decree, no interest shall be owed. The Participating Companies may also pay

the full amount within 90 days of entry of this Consent Decree, in which case the Participating Companies shall also pay interest accruing from the 46th day after entry, in the amount of 1% per month.

B. For payments to the State required by this Section XL, the Participating Companies shall deliver a check payable to the Arizona Department of Environmental Quality in the specified amount to the following address:

Fiscal Services Manager
Arizona Department of Environmental Quality
2005 North Central Avenue, Suite 600B
Phoenix, Arizona 85004.

XLI. SECTION HEADINGS

The section headings set forth in this Consent Decree and its Table of Contents are included for convenience of reference only and shall be disregarded in the construction and interpretation of any of the provisions of this Consent Decree.

XLII. EXECUTION

Each Party shall execute this Consent Decree by signing the signature page and furnishing the signed signature page to EPA. This Agreement may be executed and delivered in any number of counterparts, each of which, when executed and delivered, shall be deemed to be an original, but such counterparts together constitute one and the same document.

SIGNED AND ENTERED THIS ____ day of _____, 19__.

_____
United States District Judge

The undersigned agree to the foregoing Consent Decree and agree that, upon filing of a motion for entry by the United States, the Consent Decree may be entered.

UNITED STATES OF AMERICA

DATED: _____ By: _____

BARRY M. HARTMAN
Acting Assistant Attorney General
Environment and Natural Resources Division
United States Department of Justice
Washington, D.C. 20530

DATED: 9/5/91 By: _____

LESLIE ALLEN
Environmental Enforcement Section
Environment and Natural Resources Division
United States Department of Justice
Washington, D.C. 20530

LINDA A. AKERS
United States Attorney
District of Arizona

DATED: 11-19-91 By: _____

JAMES LOSS
Assistant United States Attorney
4000 United States Courthouse
230 North First Avenue
Phoenix, Arizona 85025

DATED: 8/29/91 By: _____

EDWARD E. REICH
Acting Assistant Administrator for the Office of Enforcement
U.S. Environmental Protection Agency
Washington, D.C. 20460

DATED: 6.27.91 By: Daniel W. McGovern

DANIEL W. MCGOVERN
Regional Administrator
U.S. Environmental Protection Agency
Region IX
75 Hawthorne Street
San Francisco, CA 94105

DATED: 6/18/91 By: Kathleen H. Johnson

KATHLEEN H. JOHNSON
Assistant Regional Counsel
U.S. Environmental Protection Agency
Region IX
75 Hawthorne Street
San Francisco, CA 94105

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

DATED: _____ By: _____

RANDOLPH WOOD
Director
2005 N. Central
Phoenix, AZ 85004

GRANT WOODS
Arizona Attorney General

DATED: _____ By: _____

LINDA J. POLLOCK
Assistant Attorney General
Arizona Attorney General's Office
1275 West Washington
Phoenix, Arizona 85007

DATED: _____ By: _____

DANIEL W. MCGOVERN
Regional Administrator
U.S. Environmental Protection Agency
Region IX
75 Hawthorne Street
San Francisco, CA 94105

DATED: _____ By: _____

KATHLEEN H. JOHNSON
Assistant Regional Counsel
U.S. Environmental Protection Agency
Region IX
75 Hawthorne Street
San Francisco, CA 94105

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

DATED: 5/6-9-91 By: Randolph Wood

RANDOLPH WOOD
Director
2005 N. Central
Phoenix, AZ 85004

GRANT WOODS
Arizona Attorney ~~General~~

DATED: 5/9/91 By: Linda J. Pollock

LINDA J. POLLOCK
Assistant Attorney General
Arizona Attorney General's Office
1275 West Washington
Phoenix, Arizona 85007

ARIZONA DEPARTMENT OF WATER RESOURCES

DATED: 3/28/91 By: _____

N.W. PLUMMER
Director
15 South 15th Avenue
Phoenix, Arizona 85007

DATED: 3/28/91 By: _____

BARBARA A. MARKHAM
Chief Counsel
HOWARD R. KOPP
Legal Counsel
15 South 15th Avenue
Phoenix, Arizona 85007

MOTOROLA, INC.

DATED: _____ By: _____

DAVID G. WOLF
Vice President and General Manager
8201 East McDowell Road
Scottsdale, Arizona 85252

SIEMENS CORPORATION

DATED: _____ By: _____

WALTER G. GANS
Vice President and General Counsel
767 Fifth Avenue
New York, N.Y. 10153

DATED _____ By: _____

Name:
Title:

SALT RIVER VALLEY WATER USERS' ASSOCIATION

DATED: _____ By: _____

JOHN R. LASSEN
President
1521 Project Drive
Tempe, Arizona 85281

ARIZONA DEPARTMENT OF WATER RESOURCES

DATED: _____ By: _____

N.W. PLUMMER
Director
South 15th Avenue
Phoenix, Arizona 85007

DATED: _____ By: _____

BARBARA A. MARKHAM
Chief Counsel
HOWARD R. KOPP
Legal Counsel
15 South 15th Avenue
Phoenix, Arizona 85007

MOTOROLA, INC.

DATED: 3-26-91 By: _____

DAVID G. WOLFE
Vice President and General Manager
8201 East McDowell Road
Scottsdale, Arizona 85252

SIEMENS CORPORATION

DATED: _____ By: _____

WALTER G. GANS
Vice President and General Counsel
767 Fifth Avenue
New York, N.Y. 10153

DATED _____ By: _____

Name:
Title:

SALT RIVER VALLEY WATER USERS' ASSOCIATION

DATED: _____ By: _____

JOHN R. LASSEN
President
1521 Project Drive
Tempe, Arizona 85281

ARIZONA DEPARTMENT OF WATER RESOURCES

DATED: _____ By: _____

N.W. PLUMMER
Director
South 15th Avenue
Phoenix, Arizona 85007

DATED: _____ By: _____

BARBARA A. MARKHAM
Chief Counsel
HOWARD R. KOPP
Legal Counsel
15 South 15th Avenue
Phoenix, Arizona 85007

MOTOROLA, INC.

DATED: _____ By: _____

DAVID G. WOLF
Vice President and General Manager
8201 East McDowell Road
Scottsdale, Arizona 85252

SIEMENS CORPORATION

DATED: _____ By: Walter G. Gans

WALTER G. GANS
Vice President and General Counsel
1301 Avenue of the Americas
New York, N.Y. 10019

DATED _____ By: A D Whitehead

Name: Adrienne D. Whitehead
Title: Secretary & Counsel

SALT RIVER VALLEY WATER USERS' ASSOCIATION

DATED: _____ By: _____

JOHN R. LASSEN
President
1521 Project Drive
Tempe, Arizona 85281

ARIZONA DEPARTMENT OF WATER RESOURCES

DATED: _____ By: _____

N.W. PLUMMER
Director
South 15th Avenue
Phoenix, Arizona 85007

DATED: _____ By: _____

BARBARA A. MARKHAM
Chief Counsel
HOWARD R. KOPP
Legal Counsel
15 South 15th Avenue
Phoenix, Arizona 85007

MOTOROLA, INC.

DATED: _____ By: _____

DAVID G. WOLF
Vice President and General Manager
8201 East McDowell Road
Scottsdale, Arizona 85252

SIEMENS CORPORATION

DATED: _____ By: _____

WALTER G. GANS
Vice President and General Counsel
767 Fifth Avenue
New York, N.Y. 10153

DATED _____ By: _____

Name:
Title:

SALT RIVER VALLEY WATER USERS' ASSOCIATION

DATED: April 5, 1991 By: John R. Lassen

JOHN R. LASSEN
President
4521 Project Drive
Tempe, Arizona 85281

ATTEST AND COUNTERSIGN:

William K. O'Neal
Secretary

APPROVED AS TO FORM:

Deborah A. Jamieson
Staff Attorney

SMITHKLINE BEECHAM CORPORATION

DATED: _____ By: _____
ALBERT J. WHITE
General Counsel - United States

CITY OF SCOTTSDALE
a municipal corporation

DATED: _____ By: _____
Herbert R. Drinkwater
Mayor

ATTEST:

Mark Mazzie, City Clerk

APPROVED AS TO FORM:

Richard W. Garnett III
City Attorney

ATTEST AND COUNTERSIGN:

William K. O'Neal
Secretary

APPROVED AS TO FORM:

Deborah A. Jamieson
Staff Attorney

SMITHKLINE BEECHAM CORPORATION

DATED: _____ By: _____

ALBERT J. WHITE
General Counsel - United States

CITY OF SCOTTSDALE
a municipal corporation

DATED: _____ By: _____

Herbert R. Drinkwater
Mayor

ATTEST:

_____
Mark Mazzie, City Clerk

APPROVED AS TO FORM:

_____
Richard W. Garnett III
City Attorney

ATTEST AND COUNTERSIGN:

William K. O'Neal
Secretary

APPROVED AS TO FORM:

Deborah A. Jamieson
Staff Attorney

SMITHKLINE BEECHAM CORPORATION

DATED: March 28, 1991 By:

ALBERT J. WHITE
General Counsel - United States

CITY OF SCOTTSDALE
a municipal corporation

DATED: By:

Herbert R. Drinkwater
Mayor

ATTEST:

Mark Mazzie, City Clerk

APPROVED AS TO FORM:

Richard W. Garnett III
City Attorney

ATTEST AND COUNTERSIGN:

William K. O'Neal
Secretary

APPROVED AS TO FORM:

Deborah A. Jamieson
Staff Attorney

SMITHKLINE BEECHAM CORPORATION

DATED: _____ By: _____

ALBERT J. WHITE
General Counsel - United States

CITY OF SCOTTSDALE
a municipal corporation

DATED: May 21, 1991 By: _____

Herbert R. Drinkwater
Mayor

ATTEST:

Mark Mazzie, City Clerk

APPROVED AS TO FORM:

for Barbara R Goldberg
Richard W. Garnett III
City Attorney

900012

REM IV

Remedial Planning Activities
at Selected Uncontrolled
Hazardous Waste Sites–Zone II

Environmental Protection Agency
Hazardous Site Control Division
Contract No. 68-01-7251

FINAL
RECORD OF DECISION
SCOTTSDALE GROUND WATER OPERABLE UNIT
INDIAN BEND WASH
SUPERFUND SITE
SCOTTSDALE, ARIZONA

September 1988
RDD63592.RA
Work Assignment 029-9L20.0

CH2M HILL

Black & Veatch
ICF
PRC
Ecology and Environment

CONTENTS

TABLES

CONTENTS
(continued)

I. DECLARATION FOR THE RECORD OF DECISION

SITE

Indian Bend Wash (IBW) Superfund site, Scottsdale Ground Water Operable Unit, Scottsdale, Arizona.

PURPOSE

In accordance with the National Contingency Plan; the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA); and the Superfund Amendment and Reauthorization Act of 1986 (SARA), potential remedial actions have been developed for the Scottsdale Ground Water Operable Unit. This decision document represents the selected remedial action. The Operable Unit has been developed to provide potable water for the City of Scottsdale and addresses ground water contamination only in the Middle and Lower Alluvium Units beneath the north portion of IBW within the Scottsdale city limits (see Figure I-1). Contamination beyond these limits in the ground water of the Upper Alluvium Unit and in the soils will be addressed separately in subsequent operable units for the IBW site. The Arizona Department of Water Resources and the Arizona Department of Environmental Quality concur with the selected remedy.

BASIS

This decision is based on the administrative record for the IBW site, which includes the results of the Remedial Investigation and the Scottsdale Ground Water Operable Unit Feasibility Study. Appendix A identifies the items contained in the Administrative Record upon which the selection of the remedial action is based.

DESCRIPTION

The IBW study area lies in the southwestern Paradise Valley encompassing approximately 13 square miles in Scottsdale and Tempe, Arizona. The study area is bounded on the north by Chaparral Road, on the east by Pima/Price Road, on the south by Apache Boulevard, and on the west by Scottsdale/Rural Road. The Salt River flows through the study area from east to west, physically separating the site into north and south areas. The area south of the river is suspected to have other source areas than those suspected in the north, and is being considered for a separate operable unit by the U.S. Environmental Protection Agency (EPA).

An Operable Unit is a discrete part of an overall site and can be examined separately if the remedial action for the

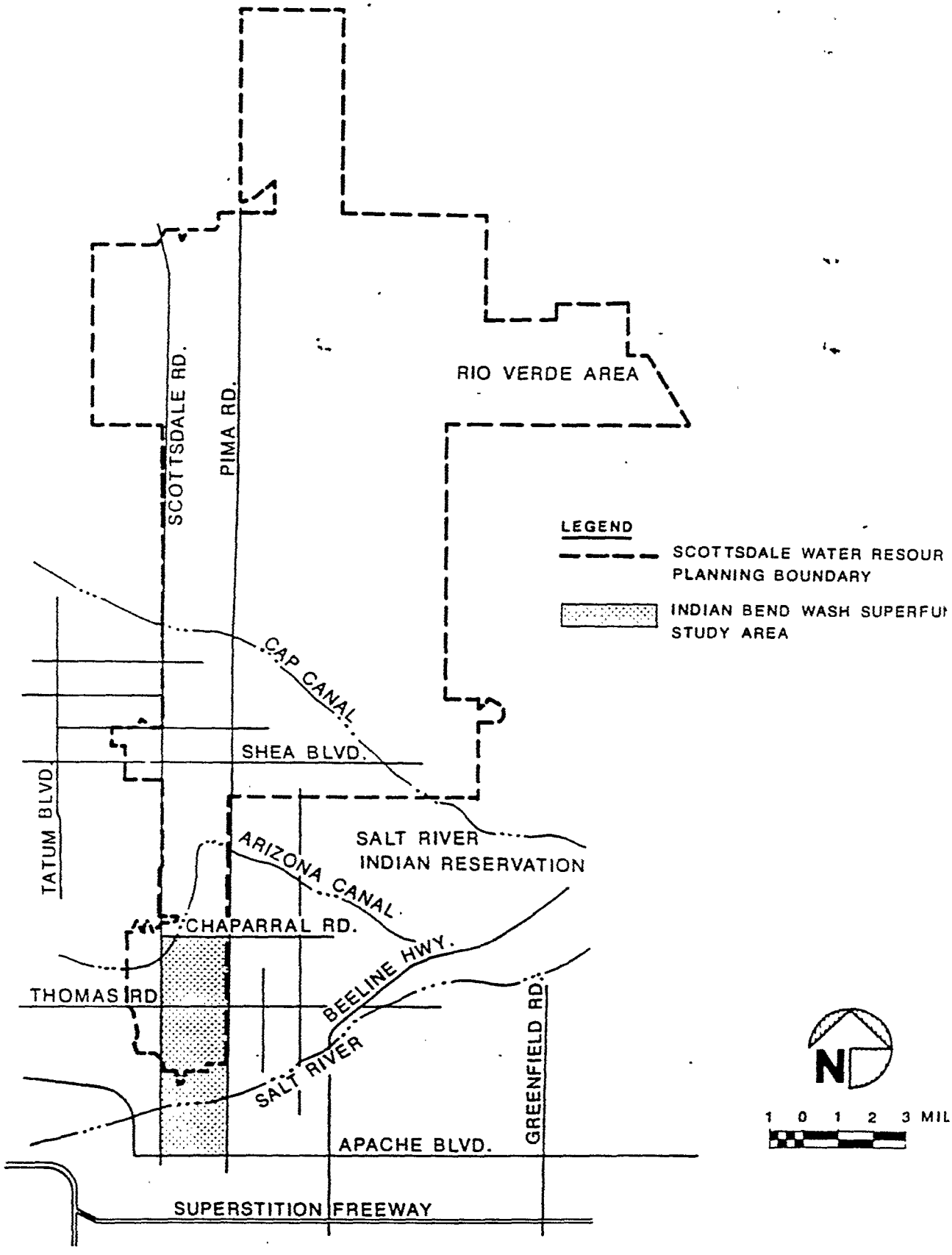


FIGURE I-1
PROJECT LOCATION M
INDIAN BEND WASH SCOTTSDALE F

RDD63592.RA AUGUST 1988

Operable Unit can be done expeditiously, is cost-effective, controls contaminant sources or migration, and is consistent with the final site remedy. The Scottsdale Ground Water Operable Unit is the portion of the study area within the Scottsdale city limits. There are 12 city wells within the Operable Unit, 7 of which have levels of volatile organic compounds (VOCs) exceeding primary drinking water standards. Figure I-2 shows the locations of the 12 wells. Presently, one of the seven contaminated wells is equipped with a VOC treatment facility and used as a potable water supply source. The remaining six are currently offline. Wells No. 31, 71, 72, and 75 are being considered for treatment under this Operable Unit. In addition, several monitor wells screened in the Middle and Lower Alluvium Units have higher concentrations of VOCs than the city wells.

The Scottsdale Ground Water Operable Unit has been developed to address the following objectives:

- Protect public health and the environment by protecting unaffected wells from VOCs.
- Provide a mechanism for the long-term management of the VOC-affected ground water in order to improve the regional aquifer's suitability for potable use by the City of Scottsdale.
- Provide a potable water source for the City within the constraints of projected water demands while utilizing existing facilities to the maximum extent feasible.

One of the remedial actions developed to meet these objectives involves extracting ground water from the Lower and Middle Alluvium Units by pumping existing municipal wells that are currently not in use and are screened in these units.

The selected remedial action meets the above objectives. The major components of the remedy involve pumping Scottsdale Wells No. 31, 71, 72, and 75 at 75 percent of their historical capacities. Preliminary analysis indicates this pumping regimen will reduce the mass of contaminants and volume of contaminated ground water in the Lower and Middle Alluvium Units. Once the system is operating and the effectiveness of removing VOCs from the Lower and Middle Alluvium Units is evaluated, additional pumping of these wells and the installation and pumping of additional extraction wells will be considered. Levels of contaminants in the extracted ground water will be reduced to meet drinking water standards. Air stripping is the preferred treatment alternative to meet these criteria, and will include air emission controls. The treated water will be delivered to the City of Scottsdale municipal water system.

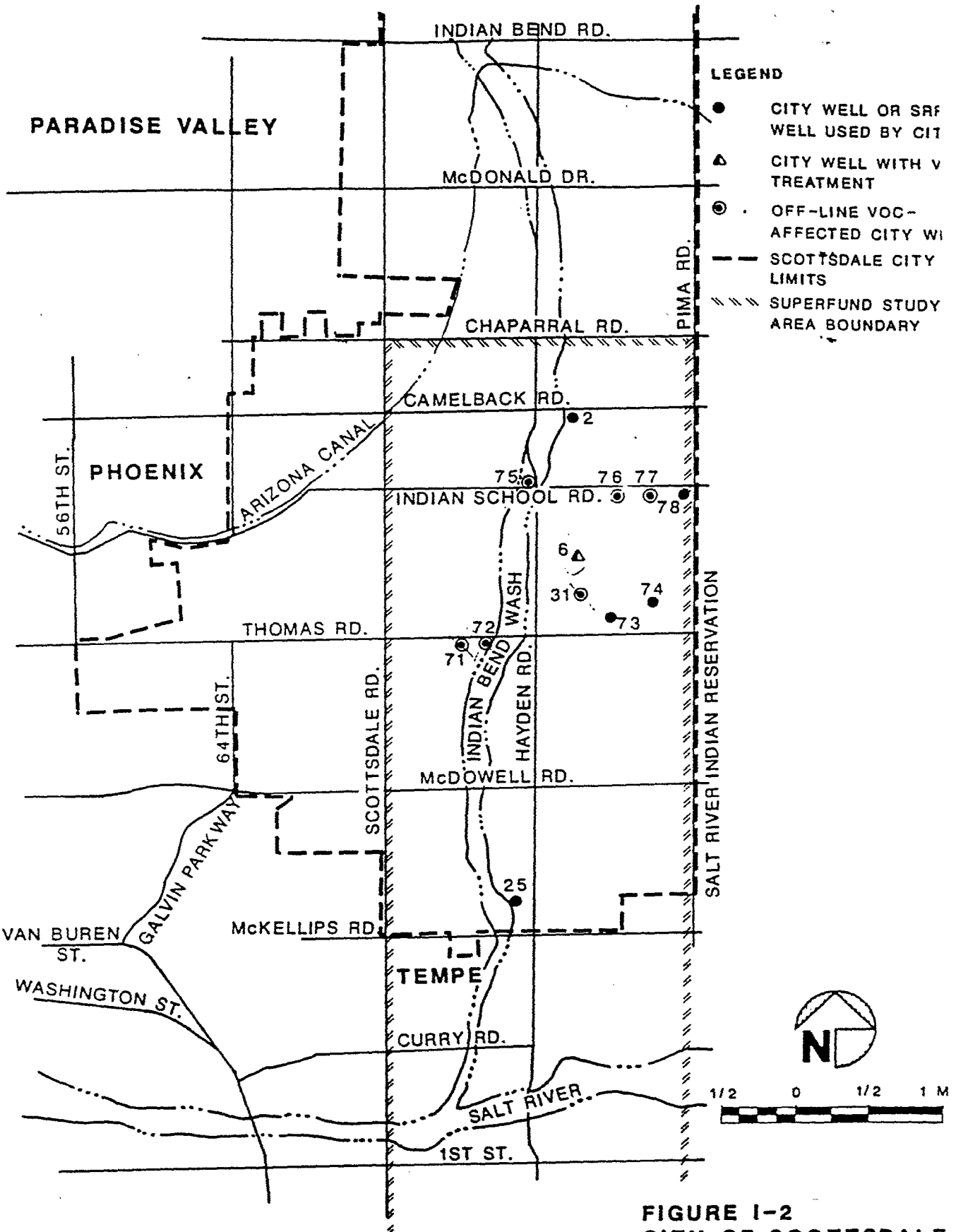


FIGURE I-2
CITY OF SCOTTSDALE WELL LOCATIONS
INDIAN BEND WASH SCOTTSDALE R

RDD63592.RA AUGUST 1988

DECLARATION

The selected remedy for this Operable Unit is protective of human health and the environment, meets Federal and State requirements that are applicable or relevant and appropriate, and is cost-effective. This remedy satisfies the preference for treatment that reduces toxicity, mobility, or volume as a principal element. All substantive permit requirements will be met during implementation of this remedial action. It is determine that the remedy for this Operable Unit uses permanent solutions and alternative treatment technologies to the maximum extent practicable. The Arizona Department of Environmental Quality and the Arizona Department of Water Resources have concurred with the remedy presented in this document.

9.21.88
Date

Daniel W. McGovern
Regional Administrator
Region IX

9.20.88
Date

John W. Wise
Deputy Regional Administrator
Region IX

RECORD OF DECISION
CONCURRENCE PAGE

Site: Indian Bend Wash Superfund Site, Operable Unit, Scottsdale, Arizona

The attached Record of Decision package for the Indian Bend Wash Superfund Site, Operable Unit, Scottsdale, Arizona, has been reviewed, and I concur with the contents.

9/ 2/88
Date

Nancy Marvel
Regional Counsel
Office of Regional Counsel
U.S. Environmental Protection Agency, Region IX

9-19-88
Date

Jeff Zelikson
Director
Toxics & Waste Management Division
U.S. Environmental Protection Agency, Region IX

Date

Harry Seraydarian
Director
Water Management Division
U.S. Environmental Protection Agency, Region IX

Date

David P. Howekamp
Director
Air Management Division
U.S. Environmental Protection Agency, Region IX

Date

Nora McGee
Acting Assistant Regional Administrator
Office of Policy and Management
U.S. Environmental Protection Agency, Region IX

RECORD OF DECISION
CONCURRENCE PAGE

Site: Indian Bend Wash Superfund Site, Operable Unit, Scottsdale, Arizona

The attached Record of Decision package for the Indian Bend Wash Superfund Site, Operable Unit, Scottsdale, Arizona, has been reviewed, and I concur with the contents.

8/ 2/88
Date

Nancy J. Marvel
Nancy Marvel
Regional Counsel
Office of Regional Counsel
U.S. Environmental Protection Agency, Region IX

9-19-88
Date

Jeff Zelikson
Director
Toxics & Waste Management Division
U.S. Environmental Protection Agency, Region IX

Date

Harry Seraydarian
Director
Water Management Division
U.S. Environmental Protection Agency, Region IX

Date

David P. Howekamp
Director
Air Management Division
U.S. Environmental Protection Agency, Region IX

Date

Nora McGee
Acting Assistant Regional Administrato
Office of Policy and Management
U.S. Environmental Protection Agency, Region IX

RECORD OF DECISION
CONCURRENCE PAGE

Site: Indian Bend Wash Superfund Site, Operable Unit, Scottsdale, Arizona

The attached Record of Decision package for the Indian Bend Wash Superfund Site, Operable Unit, Scottsdale, Arizona, has been reviewed, and I concur with the contents.

Date

Nancy Marvel
Regional Counsel
Office of Regional Counsel
U.S. Environmental Protection Agency, Region IX

Date

Jeff Zelikson
Director
Toxics & Waste Management Division
U.S. Environmental Protection Agency, Region IX

September 14, 1988
Date

Keith Takata
for
Harry Seraydarian
Director
Water Management Division
U.S. Environmental Protection Agency, Region IX

Date

David P. Howekamp
Director
Air Management Division
U.S. Environmental Protection Agency, Region IX

Date

Nora McGee
Acting Assistant Regional Administrator
Office of Policy and Management
U.S. Environmental Protection Agency, Region IX

RECORD OF DECISION
CONCURRENCE PAGE

Site: Indian Bend Wash Superfund Site, Operable Unit, Scottsdale, Arizona

The attached Record of Decision package for the Indian Bend Wash Superfund Site, Operable Unit, Scottsdale, Arizona, has been reviewed, and I concur with the contents.

Date

Nancy Marvel
Regional Counsel
Office of Regional Counsel
U.S. Environmental Protection Agency, Region IX

Date

Jeff Zelikson
Director
Toxics & Waste Management Division
U.S. Environmental Protection Agency, Region IX

Date

Harry Seraydarian
Director
Water Management Division
U.S. Environmental Protection Agency, Region IX

8/22/89
Date

David P. Howekamp
Director
Air Management Division
U.S. Environmental Protection Agency, Region IX

Date

Nora McGee
Acting Assistant Regional Administrato
Office of Policy and Management
U.S. Environmental Protection Agency, Region IX

RECORD OF DECISION
CONCURRENCE PAGE

Site: Indian Bend Wash Superfund Site, Operable Unit, Scottsdale, Arizona

The attached Record of Decision package for the Indian Bend Wash Superfund Site, Operable Unit, Scottsdale, Arizona, has been reviewed, and I concur with the contents.

Date

Nancy Marvel
Regional Counsel
Office of Regional Counsel
U.S. Environmental Protection Agency, Region IX

Date

Jeff Zelikson
Director
Toxics & Waste Management Division
U.S. Environmental Protection Agency, Region IX

Date

Harry Seraydarian
Director
Water Management Division
U.S. Environmental Protection Agency, Region IX

Date

David P. Howekamp
Director
Air Management Division
U.S. Environmental Protection Agency, Region IX

Sept. 1, 1988
Date

Nora McGee
Acting Assistant Regional Administrator
Office of Policy and Management
U.S. Environmental Protection Agency, Region IX

II. SITE DESCRIPTION

The Indian Bend Wash site encompasses approximately 13 square miles in Scottsdale and Tempe, Arizona (see Figure I-1). The Scottsdale Ground Water Operable Unit area covers approximately 8 square miles in the southeast portion of the Scottsdale city limits. Approximately 70 percent of the area is classified as residential. Approximately 23 percent is used for commercial and light industrial purposes, with the remaining 7 percent as developed open space. Land use patterns in the area are not expected to change.

The Indian Bend Wash itself runs north/south through the site and supports recreational uses. In the past, the ponds in the Wash were used as a water collection system. The water would eventually discharge to the Grand Canal. After contamination was detected in the surface water of some of the ponds, ground water was no longer discharged to the Wash. Currently, the City of Scottsdale pumps water into the ponds as needed to maintain the surface water for fishing, where allowed, and for the aesthetic qualities it provides to the Wash.

Scottsdale provides water and sewer for most of its residents. The City relies on ground water for approximately 70 percent of its municipal supply, with the additional 30 percent supplied by surface water from the Central Arizona Project.

RDD/R91/002

III. SITE HISTORY AND BACKGROUND

SITE HISTORY

In 1981, trichloroethene (TCE) was discovered in the ground water from several City of Scottsdale and City of Phoenix municipal wells at concentrations exceeding Arizona Department of Health Services action levels in effect at that time. The contaminated wells included City of Scottsdale Wells No. 6 and 31, and City of Phoenix Wells No. 34, 35, and 36 (currently Scottsdale Wells No. 75, 72, and 71, respectively). These wells were removed from potable use. Well No. 6 was equipped by the city with a VOC treatment system and returned to potable use in 1985.

IBW was added to the National Priorities List in 1982, and a Remedial Investigation began in July 1984. The Remedial Investigation is being conducted by EPA in cooperation with private companies and State and local agencies. EPA has identified several facilities within the site boundaries that have records of past use of TCE in their manufacturing processes. Two of these facilities, Motorola and Beckman Instruments, have been identified as Potentially Responsible Parties and are participating in the RI/FS.

The Remedial Investigation has focused on collecting ground water, soil, and soil gas samples for chemical analyses, and defining ground water flow in the study area.

SITE CHARACTERIZATION

The climate of the Scottsdale area is characterized by long hot summers and short mild winters. Climate information for Phoenix, Arizona, indicates the annual average daily temperature is 85°F for the high and 55°F for the low. Precipitation is in the form of rain and averages 7 inches per year. Winds are predominantly from the west at 6 miles per hour (Climates of the States, 1980).

The IBW study area is underlain by alluvial sediments which can be divided into three hydrostratigraphic units. These units consist of the Upper Alluvium Unit (UAU), the Middle Alluvium Unit (MAU), and the Lower Alluvium Unit (LAU). The UAU varies in thickness; however, in the vicinity of the study area, the thickness of the UAU is approximately 120 to 160 feet. The UAU consists primarily of sand, coarse gravel, cobbles, and boulders in this area. Ground water occurs at depths ranging from approximately 90 feet to approximately 130 feet, with up to 40 feet of saturated thickness. The saturated thickness of the unit changes with the time of year, but generally decreases to the north. Ground water in the UAU appears to be flowing in a west-northwest direction.

The MAU primarily consists of silt, clay, and interbedded fine sands. Relatively thin layers of coarser deposits are scattered throughout the unit. Ground water flow in the MAU appears to be toward the north-northwest in the study area. The thickness of the MAU ranges from approximately 360 to 660 feet. Water levels in wells perforated in the MAU occur at depths of 140 to 180 feet.

The LAU is less well defined. Samples collected during monitoring well installation indicate the unit consists of moderately to well-cemented sands and gravel. The depth of the unit is not well defined; however, it is known that the LAU is underlain by the Red Unit which consists primarily of fanglomerate, conglomerate, and sandstone. The direction of ground water flow in the LAU is thought to be similar to that of the MAU.

Water level data indicate that there is a downward-directed vertical hydraulic gradient between the UAU and the MAU and between the MAU and the LAU.

Ground water quality data indicate contamination at IBW from various organic solvents, particularly TCE, tetrachloroethene (PCE), 1,1-dichloroethene (1,1-DCE), and 1,1,1-trichloroethane (1,1,1-TCA). All of these chemicals have been found in monitoring wells at concentrations exceeding State action levels. TCE is the most widespread contaminant with a maximum reported concentration of 2,500 ppb from a UAU monitoring well. The maximum concentration reported from a Middle or Lower Alluvium monitoring well is 700 ppb. TCE has been detected in several municipal wells at concentrations up to 390 ppb and from depths as great as 1,100 feet below land surface.

Six City of Scottsdale wells are affected by VOC contamination including TCE and lower levels of PCE, 1,1-DCE and chloroform. TCE is the only VOC quantified in samples from these wells at levels that exceed primary drinking water standards. As mentioned earlier, six of the seven affected wells are not currently operating and the seventh (City of Scottsdale No. 6) is equipped with a VOC treatment system. Figure III-1 shows the location of the contaminated City wells.

RECEPTORS

ENVIRONMENT

The environment of the Scottsdale area encompassed by the IBW site is primarily residential, commercial, and industrial. There are no unique habitats or threatened or endangered species. Vegetation of the area is typical of residential and industrial areas for that geographic area.

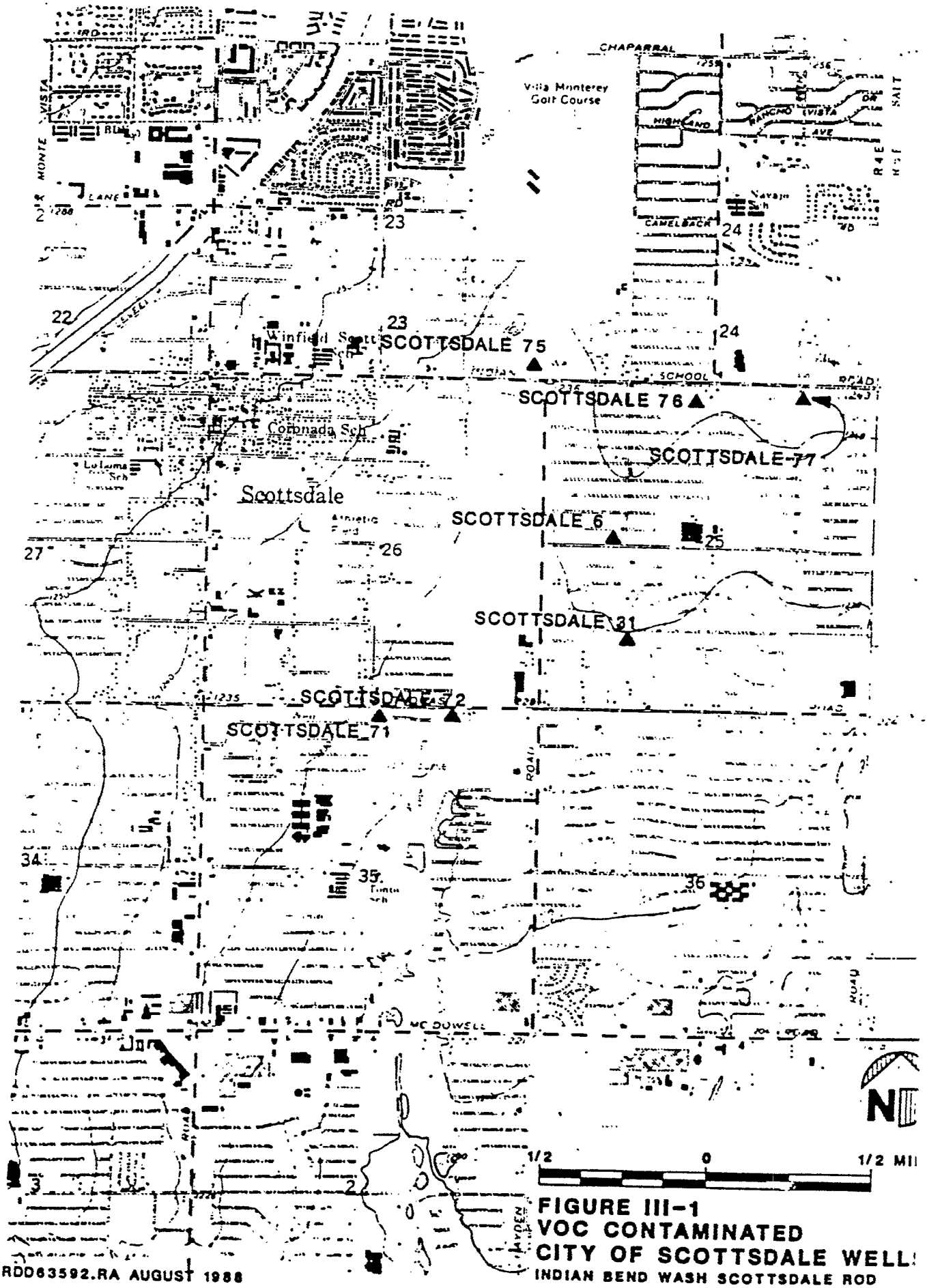


FIGURE III-1
VOC CONTAMINATED
CITY OF SCOTTSDALE WELL
INDIAN BEND WASH SCOTTSDALE ROD

RDD63592.RA AUGUST 1988

The Indian Bend Wash, which traverses through Scottsdale, supports some wildlife, primarily fish and waterfowl. Some native fish, such as the Gila sucker (Catostomas insignis) and the roundtail chub (Gila robusta) live in the ponds located along the Wash. These ponds also support populations of largemouth bass (Micropterus salmoides) and carp (Cyprinus carpio).

POPULATION

The resident population of Scottsdale was approximately 115,500 in 1986 according to the population projections issued by the City of Scottsdale (1986). By 1990, the resident population is expected to reach an estimated 129,500, and 180,800 by the year 2000 (City of Scottsdale, 1986). Scottsdale also supports a seasonal increase in population; however, this transient population varies from year to year.

All City of Scottsdale drinking water wells currently in use for municipal supply meet applicable Federal and State health standards. However, future population growth will result in greater usage of ground water resources, particularly in the contaminated areas. If no action is taken at this site and contamination migrates to areas that contribute to municipal ground water supplies, use of the ground water will result in a potential exposure to contaminants through the means illustrated in Figure III-2.

TOXICITY

ORGANIC COMPOUNDS

This group of compounds includes most of the contaminants identified at the IBW site. Several of these compounds--carbon tetrachloride, chloroform, 1,1,1-TCA, PCE, and TCE--may produce liver injury. Carbon tetrachloride and chloroform have more serious effects on the liver than TCE and PCE (Doull et al., 1980). Carbon tetrachloride, chloroform, PCE, and TCE have been classified by the U.S. EPA Carcinogen Assessment Group as probable human carcinogens (Group B2) via ingestion (U.S. EPA, 1986).

Exposures to the above compounds through inhalation may result in central nervous system depression, including anesthesia. TCE has been used as an anesthetic (NRC, 1977). Other effects may include irritation of the mucous membranes of the nose and throat and irritation to the eyes (NRC, 1980). TCE and PCE are also classified as probable human carcinogens (Group B2) by the Carcinogen Assessment Group via the inhalation route (U.S. EPA, 1986).

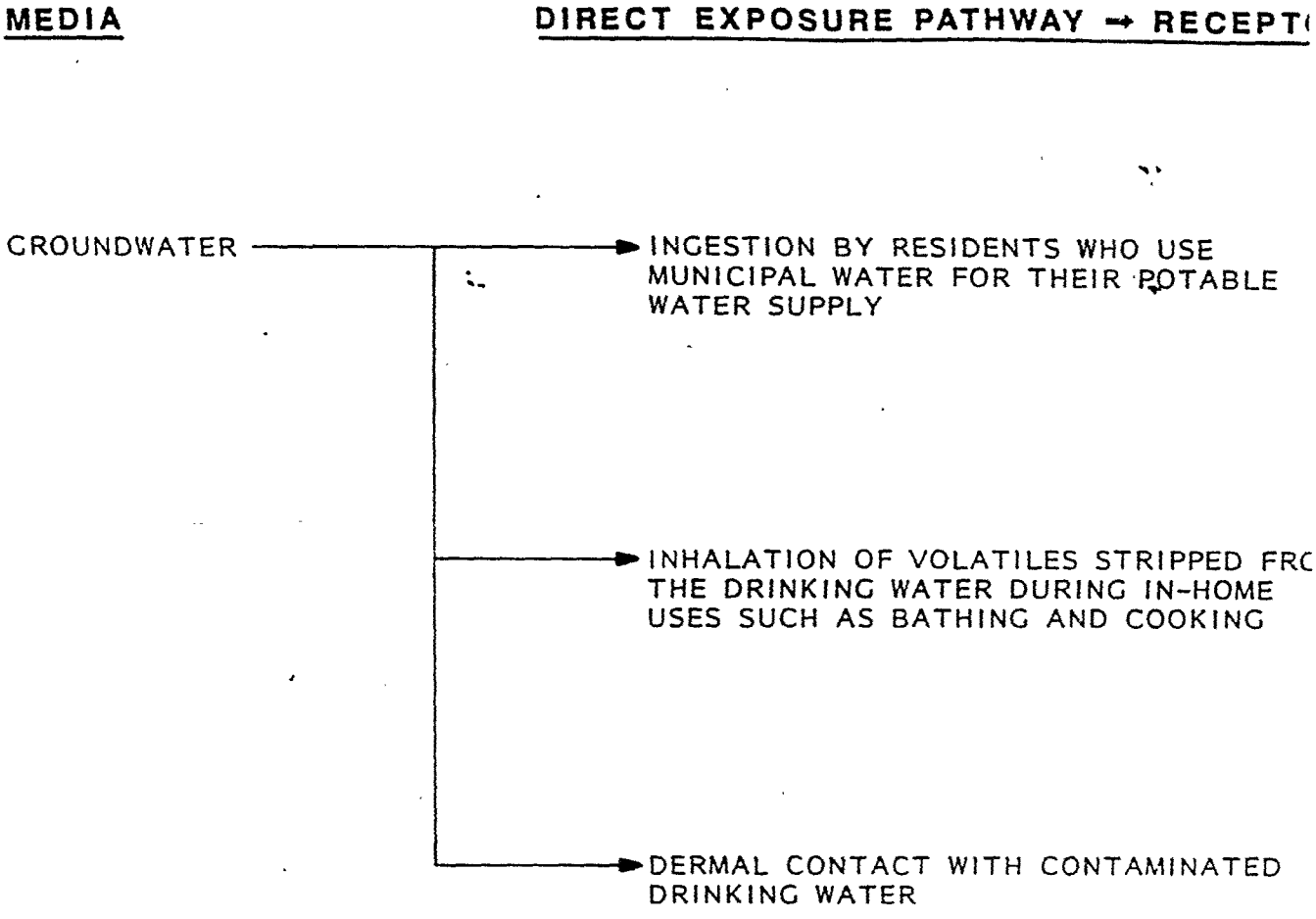


FIGURE III-2
POTENTIAL FUTURE EXPOSURE PATHWAY AND RECEPTOR SUMMAI
INDIAN BEND WASH SCOTTSDALE ROD

RDD63592.RA AUGUST 1988

Similar toxic effects to humans through inhalation and ingestion exposures are exhibited by 1,1-DCE. This compound has anesthetic properties, and exposures to high concentrations may cause nausea and vomiting (U.S. EPA, 1985).

RISK

Risk is a function of toxicity and exposure, both in terms of the dose received and the duration of exposure. At present, there is no exposure to contaminated ground water above Federal Primary Drinking Water Standards. However, future use of the City of Scottsdale wells currently not used due to contamination and future migration of the contaminants could affect plant and animal life, and human exposure to the contaminated ground water may result in excess lifetime cancer risks as shown in Table III-1.

The risk associated with exposures to contaminated ground water, particularly for future use scenarios, is an excess lifetime cancer risk that may be as high as 3×10^{-4} to 1×10^{-8} due primarily to the presence of PCE and TCE. This assumes that an individual ingests 2 liters of water daily for 3 months each year over the course of a 70-year lifetime. It is assumed that the 3 months constitute the peak demand months of summer when surface-water supplies may be limited and ground water resources would be necessary. Noncarcinogenic effects resulting from ingestion exposure to 1,1-DCE, PCE, zinc, and lead are of concern.

RDD/R85/002

Table III-1
SUMMARY OF EXPOSURE ROUTES AND RISKS

Medium	Exposure Setting	Exposure Route	Results
Ground water	Residential--Potential Future	Ingestion	The estimated excess lifetime cancer risk from ingestion of ground water from the Beckman monitor wells presents a 1×10^{-5} to 7×10^{-7} range of additive risk for organic contaminants. A 1×10^{-3} excess lifetime cancer risk was calculated for arsenic; the MCL of 50 µg/l for arsenic was not exceeded in this well. The daily intake of lead resulted in a daily intake that exceeded the AIC for the 18- to 70-age category. At this time, the lead found in the ground water sample is not believed to be the result of disposal activities in the area. The concentration of lead did not exceed the MCL of 50 µg/l. For other noncarcinogens evaluated, there does not appear to be an ingestion risk based on the limited available data. For the various municipal wells evaluated, an estimated excess lifetime cancer risk from ingestion presents a 1×10^{-6} to 6×10^{-9} range based on the organic contaminants with cancer potency factors. A 1×10^{-3} excess lifetime cancer risk was calculated for arsenic; however, the MCL of 50 µg/l was not exceeded for any of the wells. There is no known ingestion risk due to noncarcinogens from these wells based on the limited available data. The estimated excess lifetime cancer risk from ingestion of ground water from the EPA

Table III-1
(continued)

Medium	Exposure Setting	Exposure Route	Results
			monitor wells presents a 7×10^{-5} to 2×10^{-6} range of additive risks for organic contaminants. For noncarcinogens, the acceptable intake or the hazard index were exceeded for the following contaminants and wells: o E-1MA: zinc; 0 to 6 years, AIS; 6 to 11 years, AIS; 18 to 70 years, AIC. o E-2UA: lead, chromium; 18 to 70 years, hazard index. For other noncarcinogens evaluated, there does not appear to be an ingestion risk, based on the limited available data. The estimated excess lifetime cancer risk from ingestion of ground water from the Motorola monitor wells presents a 3×10^{-4} to 2×10^{-7} range of additive risks for organic contaminants. A 3×10^{-3} excess lifetime cancer risk was calculated for arsenic; however, the MCL was not exceeded. For noncarcinogens, the acceptable intake or the hazard index were exceeded for the following contaminants and wells: o M-4UA: 1,1-dichloroethene, perchloroethene; 18 to 70 years, hazard index. o M-5UA: 1,1-dichloroethene, perchloroethene; 18 to 70 years, hazard index.

Table III-1
(continued)

Medium	Exposure Setting	Exposure Route	Results
			o M-7MA: chromium, nickel, cadmium; 18 to 70 years, hazard index. o M-10UA: 1,1-dichloroethene, perchloroethene; 18 to 70 years, hazard index. o ST-1: 1,1-dichloroethene, perchloroethene; 18 to 70 years, hazard index. o ST-2: 1,1-dichloroethene; 18 to 70 years, AIC (based on maximum concentration). 1,1-dichloroethene, perchloroethene; 18 to 70 years, hazard index (average concentrations). o ST-3: copper, zinc; 0 to 6 years, hazard index. 1,1-dichloroethene, perchloroethene, chloroform, copper; 18 to 70 years, hazard index. For other noncarcinogens evaluated, there does not appear to be an ingestion risk, based on the limited available data. The estimated excess lifetime cancer risk from ingestion of ground water from SRP irrigation wells presents a 2×10^{-4} to 3×10^{-6} range of additive risks for organic contaminants. There is no known ingestion risk due to noncarcinogens from these wells based on the limited available data.
Ground water	Residential--Potential Future	Inhalation	The risk from inhalation of volatiles released from the ground water in the

Table III-1
(continued)

Medium	Exposure Setting	Exposure Risk	Results
			bathing, etc., cannot be quantified. However, it should be recognized that this exposure could contribute to the overall risk from the use of contaminated ground water.
		Dermal Contact	The risk from dermal contact with contaminated ground water and subsequent exposure to organic contaminants cannot be quantified. It should be recognized that this exposure has been demonstrated to be significant (Brown et al., 1984) and therefore could contribute to the overall risk from the use of contaminated ground water.

IV. ENFORCEMENT HISTORY

In the Indian Bend Wash area, Motorola, Government Electronics Group (Motorola) and Beckman Instruments, Inc. (Beckman), have received general notice letters compelling their involvement in the Remedial Investigation/Feasibility Study (RI/FS).

The efforts expended by both companies have been investigatory in nature and include such activities as source investigation and ground water monitoring. A history of the administrative orders follow:

Docket Number	Company	Authority
84-01	Motorola	RCRA-3013
84-04	Beckman	RCRA-3013
86-06	Motorola	CERCLA-106
87-05	Motorola	CERCLA-106

Both companies are continuing to participate in the RI/FS. These specific activities include conducting monthly water level measurements, sampling ground water wells quarterly, installing ground water monitoring wells, and conducting other field activities to determine the extent of soils and ground water contamination.

RDD/R85/018

V. COMMUNITY RELATIONS HISTORY

The following is a list of community relations activities conducted by the U.S. Environmental Protection Agency at the Indian Bend Wash Superfund site:

- Conducted interviews with Phoenix, Tempe, and Scottsdale residents and State and local officials to improve the Agency's understanding of community concerns. These interviews provided the basis for the Indian Bend Wash Community Relations Plan released in September 1984.

- Established information repositories at the Arizona Department of Health Services, Phoenix Public Library, Scottsdale Public Library, and Tempe Public Library. Updated repositories periodically with factsheets and other relevant documents.

- Publicized and maintained a toll-free information message line to enable interested residents to call EPA with questions and comments on the Indian Bend Wash Superfund site activity.

- Established and maintained a computerized mailing list with more than 200 names and addresses of interested individuals.

- In July 1984, distributed a letter and factsheet announcing startup of RI/FS activities. A public meeting was held in August 1984 to provide an overview of the Superfund process and to inform interested community members of upcoming RI/FS activities.

- Sent out a factsheet in February 1985 to update the community on RI/FS and enforcement activities.

- In July 1986, distributed a factsheet informing the community about the completion of the Phase I Remedial Investigation Report and other site-related activities including the community well sampling program and the lake and fish sampling program.

- Held a community meeting in August 1986 to update the community on site activities, present the results of the Remedial Investigation Phase I Report, and discuss future RI/FS activities. Approximately 30 people attended this meeting.

VII. SELECTED REMEDY

DESCRIPTION

Presently, the preferred alternatives for the Scottsdale Ground Water Operable Unit are:

Containment Alternative--Ground water will be extracted from the Middle and Lower Alluvium Units by pumping City of Scottsdale Wells No. 31, 71, 72, and 75 at a minimum of 75 percent of their historical capacities (P.2). This alternative is chosen because it utilizes existing wells and appears to be the most effective for reducing the amount of TCE during the first years of operation (See Table VI-1). Once the system is operating and the effectiveness of removing VOCs from the Middle and Lower Alluvium Units can be further evaluated, additional pumping of these wells (up to 100 percent of their original capacities) and the use of additional extraction wells will be considered. The pumped water will be sent to the City of Scottsdale water system for potable use after contaminant levels are reduced to meet primary drinking water standards.

Treatment Alternative-Air Stripping with Air Emission Controls--The extracted ground water will be sent through a collection system to a centralized treatment facility. Air stripping will be used since all of the contaminant levels can be lowered to meet drinking water standards at a lower cost than by using granular activated carbon. Specifically, packed column aeration will be used in which the water passes over the packing material by gravity. Air is forced upwards through the column to provide a counter-current flow. The VOCs are transferred from the water to the air and exhausted at the top of the columns. Vapor phase GAC adsorption will be used to remove VOCs from the air waste stream from the treatment plant.

End Use--To completely satisfy the objectives of the Operable Unit, the end use will be distribution to the City of Scottsdale water system. Any recharge project proposed by the City of Scottsdale will be evaluated for any adverse impact on the Operable Unit.

After 50 years of operation, the chosen alternative is estimated to remove between 79 and 85 percent of the present mass of TCE in the Lower and Middle Alluvium Units. This remedy will provide potable water to the city while utilizing existing facilities, improve the regional aquifer's suitability for potable use by removing contaminants, and protect public health and the environment by protecting unaffected wells from VOCs. It also fulfills the statutory preference for permanent solutions at Superfund sites.

Present worth cost estimates for the pumping and air stripping treatment alternative are presented in Table VII-1. Costs include piping and treatment equipment, maintenance, regeneration of vapor phase GAC, and engineering and design. The estimates are based on a system capacity equal to the historic pumping capacities of Wells 31, 71, 72, and 75 (8,400 gpm) and the treatment goals in Table VII-2. If the MCLs for the VOCs or other constituents such as heavy metals are changed, the remedy will be reevaluated to determine if a design modification is necessary. Cost estimates were initially developed for two alternatives within the air stripping alternative. One considered stainless steel columns with circular cross sections, and the other considered concrete columns with rectangular cross sections. The estimates presented in Table VII-1 are based on the concrete columns, which is the preferred design.

STATUTORY DETERMINATIONS

CERCLA, and its reauthorization, SARA, requires that permanent reductions of contaminants through treatment be preferred over containment alternatives. It also requires that Applicable or Relevant and Appropriate Requirements (ARARs) be used to determine the treatment levels. By achieving these requirements, the selected remedy for the Scottsdale Ground Water Operable Unit reduces the present and future risks associated with use of the ground water in the Scottsdale area. By reducing the contaminant levels and restricting their mobility, this remedy protects both human health and environmental quality.

Table VII-2 shows the ARARs identified for the ground water and the proposed treatment goals. Contaminant levels found in the IBW wells are greater than the Safe Drinking Water Act maximum contaminant levels and the Arizona Department of Health Services action levels.

Table VII-1
PRELIMINARY COST ESTIMATES--PRESENT WORTH ANALYSIS
PACKED COLUMN AERATION WITH VAPOR-PHASE GAC AND
PUMPING OF EXISTING WELLS

Total Capital Cost	$4,008,000
Annual Operating Cost	520,000
Present Worth of Operating Costs at 10 percent	4,720,000
Total Present Worth at 10 percent	8,728,000

Notes: System capacity = 8,400 gpm.
Present worth factor is based on an annual interest rate and 25 years of operation.

The selected remedy satisfies the requirements for treatment and risk reduction, and does so economically. Initial analysis of the pumping regimen indicates the volume of contaminated ground water and mass of VOCs will be reduced.

Of the proven technologies, air stripping proved to be the most economical treatment method available, both for capital and operating costs. It will also reduce residual wastes to a minimum.

Distribution of the treated water to the City of Scottsdale water system is the only end use that will satisfy the objective of providing a potable water source to the City. The selected remedy satisfies the requirement of reducing the mobility, toxicity, and volume of contaminated water. It does so by using treatment technology to the maximum extent practicable and does so in a cost-effective manner.

Table VII-2
STATE AND FEDERAL
APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS[a]
AND OTHER CRITERIA
(concentrations in ppb)

Compound	SDWA MCL	SDWA MCLG	ADHS Action Level	Treatment Goal
Trichloroethene	5	0	5	5
1,1,1-Trichloroethane	200	200	200	200
1,1-Dichloroethene	7	7	7	7
Perchloroethene			1	0.67
Chloroform[b]			3	0.5

[a] Clean Water Act requirements will be determined during NPDES review.

[b] Source is not a byproduct of municipal water supply chlorination.

Notes: ADHS--Arizona Department of Health Services
AWQC--Ambient Water Quality Criteria
MCL---Maximum Contaminant Level
MCLG--Maximum Contaminant Level Goal
SDWA--Safe Drinking Water Act

Sources: U.S. EPA 1986. Public Health Assessment Manual
ADHS 1987. S. Eberhart

VIII. REFERENCES

City of Scottsdale, Arizona. August 1986. Population Projections, 1986-2010. Growth and Development Report, Planning and Economic Development.

Climates of the States. 1980. Second Edition, Vol. I, Detroit, Michigan: Gale Research Company.

Doull, J., C. D. Klaassen, and M. D. Amdur. 1980. Toxicology. MacMillan.

NRC (National Research Council). 1980. Drinking Water and Health. Vol. III. Washington, D.C.

NRC (National Research Council). 1977. Drinking Water and Health. Vol. I. Washington, D.C.

U.S EPA. 1986. Superfund Public Health Evaluation Manual. Washington, D.C.: Office of Emergency and Remedial Response, Office of Solid Waste and Emergency Response.

U.S. EPA. 1985. Chemical, Physical, and Biological Properties of Compounds Present at Hazardous Waste Sites. Final Report. Washington, D.C.: Office of Waste Programs, Enforcement, Office of Solid Waste and Emergency Response.

RDD/R48/012

Appendix A
INDEX OF ADMINISTRATIVE RECORD

March 1984 Ecology and Environment, Inc.

Review of Chemical Characterization of Soil from the Chemical and Electronic Shop Disposal Line Break at Motorola. Motorola, Inc. Government Electronics Group. March 27, 1984.

Reviews report of leak in Motorola wastewater effluent line by Dr. Wallace Fuller (Motorola consultant).

June 1984 Ecology and Environment, Inc.

Final Work Plan RI/FS Indian Bend Wash Site. Phoenix, Arizona. June 1984.

Describes the activities to be carried out and the methodology for the Remedial Investigation and Feasibility Study of the Indian Bend Wash area.

July 1984 Ecology and Environment, Inc.

Sample Documentation Report Indian Bend Wash. Remedial Investigation. Scottsdale, Arizona. July 2, 1984.

Discusses the well sampling effort performed during the weeks of October 29 and November 3, 1984, throughout the IBW study area.

September 1984 Ecology and Environment, Inc.

Final Community Relations Plan. Indian Bend Wash. Phoenix, Arizona. September 1984.

Prepared as part of Phase I of the RI/FS to provide a means of gathering background, site history, and a discussion of the concerns of interested parties.

November 1984 Ecology and Environment, Inc.

Quality Assurance Project Plan. Indian Bend Wash and Phoenix-Litchfield Airport Area Sites. November 1984.

November 1984 (continued)		Describes procedures for ensuring quality control and reliability of sampling procedures, field measurements, equipment maintenance, analytical procedures, data management, and document control.
February 1985	Errol L. Montgomery and Associates, Inc.	Phase II Results of Motorola Inc. Hydrogeologic Investigations On-site Monitor Wells. Motorola Inc. Government Electronics group. Scottsdale Plant, Maricopa County, Arizona. February 22, 1985. This report provides results of hydrogeologic investigations conducted at the Motorola Inc. Scottsdale plant.
November 1985	Errol L. Montgomery and Associates, Inc.	Phase I Off-site Results of Motorola Inc. Hydrogeologic Investigations Phase I Off-site Monitor Wells. Motorola Inc. Government Electronics Group. Scottsdale plant. Maricopa County, Arizona. November 21, 1985. This report provides results of Phase I hydrogeologic investigations conducted in the Indian Bend Wash Area.
March 1986	The Mark Group	Hydrogeology Report (Former) Beckman Instruments, Inc. Site. Scottsdale, Arizona. March 21, 1986. Provides results of soil and soil gas sampling and analysis, monitor well construction and sampling, theoretical analysis of trichloroethene transport, and interpretation of both onsite and offsite data at the former Beckman site.

May 1986	Ecology and Environment, Inc.	Draft Phase I Task Report. Indian Bend Wash. Remedial Investigation. Scottsdale, Arizona. May 19, 1986. Defines the ground water flow patterns in the study area, determines the vertical and lateral extent of ground water contamination, estimates the volume of ground water impacted, determines potential sources of contamination, and obtains data for use in the Feasibility Study.
December 1986	U.S. EPA	Interim Guidance on Superfund Selection of Remedy. December 24, 1986. Provides new guidance on the selection of remedial actions in the absence of a new edition of the NCP. Incorporates Superfund Amendments and Reauthorization Act of 1986 (SARA).
July 1987	U.S. EPA	Interim Guidelines on Compliance with Applicable or Relevant and Appropriate Requirements. July 9, 1987. Provides new guidance on selection of ARARs and MCLs as cleanup standards for Superfund sites. Incorporates SARA.
August 1987	Black and Veatch	Soil Sampling Plan. Indian Bend Wash, RI/FS. August 10, 1987. Describes the objectives of the investigation of the vadose zone at Indian Bend Wash.
September 1987	CH2M HILL	Evaluation of Groundwater Treatment Remedial Alternatives. Indian Bend Wash. September 9, 1987.

		Describes and evaluates groundwater treatment technologies and provides order-of-magnitude costs for those discussed.
October 1987	CH2M HILL	Evaluation of Potential Water Use Alternatives. Indian Bend Wash. Remedial Investigation. October 16, 1987. Presents an evaluation of potential water user alternatives near the IBW site if ground water is extracted and treated.
November 1987	Errol L. Montgomery and Associates, Inc.	Results of 10-Day Middle Alluvium Unit Aquifer Test February-March 1987. Motorola Inc., Government Electronics Group. Scottsdale, Arizona. November 20, 1987. This report gives the results of a 10-day aquifer test at pumped Well (A-1-4) 1abb1 [SRP 23.6E, 6N] in the Indian Bend Wash area.
December 1987	CH2M HILL	Groundwater Field Sampling Plan Phase II/Stage 2 Remedial Investigation. Indian Bend Wash Site. Scottsdale, Arizona. December 1987. This scope of work discusses the installation and testing of six new monitoring wells at Indian Bend Wash site.
February 1988	CH2M HILL	Technical Memorandum Soil Gas Results. Indian Bend Wash RI/FS. Scottsdale, Arizona. February 5, 1988. Discusses soil gas sampling and mobile analysis conducted at the IBW Superfund site during February 1987, June 1987, and December 1987.

April 1988 City of Scottsdale, Arizona

Public Comment Operable Unit Feasibility Study for Remediation of Groundwater in the Southern Scottsdale Area. Malcolm Pirnie. April 1988.

Discusses, screens, and evaluates remedial actions for providing an expedited cleanup of the Scottsdale Operable Unit.

RDD/R32/016

Appendix A
INDEX OF ADMINISTRATIVE RECORD

March 1984 Ecology and Environment, Inc.	Review of Chemical Characterization of Soil from the Chemical and Electronic Shop Disposal Line Break at Motorola. Motorola, Inc. Government Electronics Group. March 27, 1984. Reviews report of leak in Motorola wastewater effluent line by Dr. Wallace Fuller (Motorola consultant).
June 1984 Ecology and Environment, Inc.	Final Work Plan RI/FS Indian Bend Wash Site. Phoenix, Arizona. June 1984. Describes the activities to be carried out and the methodology for the Remedial Investigation and Feasibility Study of the Indian Bend Wash area.
July 1984 Ecology and Environment, Inc.	Sample Documentation Report Indian Bend Wash. Remedial Investigation. Scottsdale, Arizona. July 2, 1984. Discusses the well sampling effort performed during the weeks of October 29 and November 3, 1984, throughout the IBW study area.
September 1984 Ecology and Environment, Inc.	Final Community Relations Plan. Indian Bend Wash. Phoenix, Arizona. September 1984. Prepared as part of Phase I of the RI/FS to provide a means of gathering background, site history, and a discussion of the concerns of interested parties.
November 1984 Ecology and Environment, Inc.	Quality Assurance Project Plan. Indian Bend Wash and Phoenix-Litchfield Airport Area Sites. November 1984.

November 1984 (continued)		Describes procedures for ensuring quality control and reliability of sampling procedures, field measurements, equipment maintenance, analytical procedures, data management, and document control.
February 1985	Errol L. Montgomery and Associates, Inc.	Phase II Results of Motorola Inc. Hydrogeologic Investigations On-site Monitor Wells. Motorola Inc. Government Electronics group. Scottsdale Plant, Maricopa County, Arizona. February 22, 1985. This report provides results of hydrogeologic investigations conducted at the Motorola Inc. Scottsdale plant.
November 1985	Errol L. Montgomery and Associates, Inc.	Phase I Off-site Results of Motorola Inc. Hydrogeologic Investigations Phase I Off-site Monitor Wells. Motorola Inc. Government Electronics Group. Scottsdale plant. Maricopa County, Arizona. November 21, 1985. This report provides results of Phase I hydrogeologic investigations conducted in the Indian Bend Wash Area.
March 1986	The Mark Group	Hydrogeology Report (Former) Beckman Instruments, Inc. Site. Scottsdale, Arizona. March 21, 1986. Provides results of soil and soil gas sampling and analysis, monitor well construction and sampling, theoretical analysis of trichloroethene transport, and interpretation of both onsite and offsite data at the former Beckman site.

August 1986	Ecology and Environment, Inc.	Phase I Task Report. Indian Bend Wash. Remedial Investigation. Scottsdale, Arizona. August 11, 1986. Defines the ground water flow patterns in the study area, determines the vertical and lateral extent of ground water contamination, estimates the volume of ground water impacted, determines potential sources of contamination, and obtains data for use in the Feasibility Study.
December 1986	U.S. EPA	Interim Guidance on Superfund Selection of Remedy. December 24, 1986. Provides new guidance on the selection of remedial actions in the absence of a new edition of the NCP. Incorporates Superfund Amendments and Reauthorization Act of 1986 (SARA).
July 1987	U.S. EPA	Interim Guidelines on Compliance with Applicable or Relevant and Appropriate Requirements. July 9, 1987. Provides new guidance on selection of ARARs and MCLs as cleanup standards for Superfund sites. Incorporates SARA.
August 1987	Black and Veatch	Soil Sampling Plan. Indian Bend Wash, RI/FS. August 10, 1987. Describes the objectives of the investigation of the vadose zone at Indian Bend Wash.
September 1987	CH2M HILL	Evaluation of Groundwater Treatment Remedial Alternatives. Indian Bend Wash. September 9, 1987.

		Describes and evaluates groundwater treatment technologies and provides order-of-magnitude costs for those discussed.
October 1987	CH2M HILL	Evaluation of Potential Water Use Alternatives. Indian Bend Wash. Remedial Investigation. October 16, 1987. Presents an evaluation of potential water user alternatives near the IBW site if ground water is extracted and treated.
November 1987	Errol L. Montgomery and Associates, Inc.	Results of 10-Day Middle Alluvium Unit Aquifer Test February-March 1987. Motorola Inc., Government Electronics Group. Scottsdale, Arizona. November 20, 1987. This report gives the results of a 10-day aquifer test at pumped Well (A-1-4) 1abb1 [SRP 23.6E, 6N] in the Indian Bend Wash area.
December 1987	CH2M HILL	Groundwater Field Sampling Plan Phase II/Stage 2 Remedial Investigation. Indian Bend Wash Site. Scottsdale, Arizona. December 1987. This scope of work discusses the installation and testing of six new monitoring wells at Indian Bend Wash site.
February 1988	CH2M HILL	Technical Memorandum Soil Gas Results. Indian Bend Wash RI/FS. Scottsdale, Arizona. February 5, 1988. Discusses soil gas sampling and mobile analysis conducted at the IBW Superfund site during February 1987, June 1987, and December 1987.

April 1988	City of Scottsdale, Arizona	Public Comment Operable Unit Feasibility Study for Remediation of Groundwater in the Southern Scottsdale Area. Malcolm Pirnie. April 1988. Discusses, screens, and evaluates remedial actions for providing an expedited cleanup of the Scottsdale Operable Unit.
September 1988	U.S. EPA	Final Record of Decision Scottsdale Groundwater Operable Unit. Indian Bend Superfund Site. Scottsdale, Arizona. CH2M HILL

RDD/R32/016

Appendix B
RESPONSE SUMMARY

Appendix B
RESPONSE SUMMARY

OPERABLE UNIT FEASIBILITY STUDY (OUFS) FOR REMEDIATION OF GROUNDWATER IN THE SOUTHERN SCOTTSDALE AREA

OVERVIEW

During the public comment period for the April 1988 OUFS (Draft for Public Comment) from April 19 through May 18, 1988, EPA received comments on the recommended partial remedy for ground water at the Indian Bend Wash (IBW) area. Comments were received from State regulatory agencies and from businesses presently or previously located in the IBW area. EPA also received comments from the general public at its Public Meeting held May 5, 1988, at Scottsdale City Hall.

Most of the comments received were of a technical nature. Substantial technical comments are responded to herein. None of the comments raised issues that would affect EPA's selection of a partial remedy or require reissuance of a revised OUFS. Therefore, the April 1988 Public Comment OUFS, along with clarification provided by this Response Summary, shall constitute the Final OUFS for this project.

SUMMARY OF PUBLIC COMMENTS AND AGENCY RESPONSES

GENERAL COMMENTS

From Arizona Department of Water Resources; Arizona Department of Environmental Quality

1. Concerns were expressed regarding the level of detail in discussions of ground water pumping alternatives, new water quality data obtained for Scottsdale Well No. 76, and the limitations of analysis results obtained from the two-dimensional ground water model utilized.

RESPONSE: The purpose of the two-dimensional model is to evaluate the feasibility of various pumping regimens to achieve the remedial action objectives for ground water stated in the OUFS: (1) to protect unaffected wells from VOCs, and (2) to improve the regional aquifer's suitability for potable use. Although the two-dimensional model is more simplistic than a properly constructed and operated three-dimensional model, the two-dimensional model adequately considers the hydrogeologic conditions, and the projections are suitable to evaluate the feasibility of pumping to achieve the

ground water remediation objectives of the OUFS. Additional detailed modeling may refine the understanding of the complex hydrogeologic system; however, a higher degree of detailed modeling is not required for the purposes of the OUFS. It should be noted that the Operable Unit remedy is designed to be a partial remedy, and additional modeling and consideration of other potentially feasible pumping alternatives will be considered in the overall FS for the IBW area. Acquisition of new water quality data and further work with ADWR's three-dimensional model is encouraged, and new available data should be used, when appropriate, to propose modifications to the remedial action program to more effectively achieve the objectives of the remedy.

Results of computer modeling cannot be regarded as absolute and must be considered using professional discretion. For practical purposes, Scottsdale Well No. 76 was simulated as an extraction well in two pumping regimens and is located on the 5 µg/l TCE contour for initial modeling conditions. The model results predict that Well No. 76 could soon be affected with low concentrations of VOCs; and this has been verified by recent sampling, after which the well was removed from potable service. The model results do not indicate that there will be no further migration of the zone of contamination. The results do suggest that under the pumping regimens used for modeling operations, migration should not be substantial and the areal extent of affected ground water should be reduced. Pumping regimens used for modeling operations were based on the assumption that pumping patterns in the model area would remain unchanged. Attempting to predict future pumping patterns throughout the model area based on historic pumping data is at best an approximation, but a necessary one for this modeling application. In no way do the model's limitations indicate that the proposed partial remedy may not achieve the remedial action objectives stated in the OUFS.

SPECIFIC QUESTIONS AND COMMENTS

From EPA Region IX, Quality Assurance Management Section

1. The OUFS report mentions sampling programs and water quality in the Background and Site History Section, but the actual quality of the data is not mentioned. The author should discuss whether the quality of the data was determined, and whether the data quality was considered in developing potential remedial actions at the IBW site.

RESPONSE: The presentations of water quality data in the OUFS are brief summaries of extensive available data from monitor wells and affected City wells. These data were summarized in order to provide a manageable database from which

to estimate potential water quality from extraction wells for use in treatment analyses. All monitor well sampling and analyses were performed in accordance with EPA Contract Laboratory Program (CLP) procedures for Quality Assurance/ Quality Control. QA/QC results were accounted for during compilation of the water quality data summaries in the OUFS and were a major factor in limiting the list of VOCs of concern to five compounds. In addition, potential impacts on the treatment alternatives by two other compounds (toluene and methylene chloride) are evaluated in Section 5 of the OUFS because, although very limited in occurrence, some of the analyses that indicated detectable results of these compounds in monitor wells appeared to pass QA/QC criteria. As stated on page 1-6, paragraph 2 of the OUFS, more extensive presentations of water quality data can be found in the Remedial Investigation and related reports, although the cited references should be 1, 3, 4, 5, and 6, not 4 through 8 as shown.

From Beckman Instruments, Inc.

1. The OUFS should include additional consideration of whether the proposed remedy is consistent with the current state of knowledge of the Upper Alluvium Unit and any ultimate remedial program for the unit. The Upper Alluvium Unit in the southerly portions of the North IBW site contains significant quantities of water and VOCs, and we believe the distribution of chemicals of concern in the unit should be considered and discussed further in the OUFS.

RESPONSE: The current understanding of the hydrogeology of the Upper Alluvium Unit is summarized in Section 1 of the OUFS, and more detailed discussions are available in the Remedial Investigation and other related reports included in the administrative record. Potential impacts of Upper Alluvium Unit ground water on the remedial action alternatives are examined thoroughly in Sections 4 and 5 of the OUFS, and will also be considered during final design of the partial remedy. The proposed partial remedy of pumping contaminated wells and subsequent treatment for potable use will not be inconsistent with the final remedy for the IBW site, and the current migration of VOCs from the Upper to the Middle and Lower Alluvium Units through short-circuiting in wells and low-rate percolation will continue whether or not the proposed remedy is implemented. As stated in the OUFS, sealing of well casings in the Upper Alluvium Unit would not eliminate the downward migration of VOCs, and is not necessary because the proposed partial remedy will accommodate impacts from Upper Alluvium Unit contamination and provide for some level of cleanup for Upper Alluvium Unit water. The OUFS is not intended to provide a final remedy for the entire IBW

site. EPA will address the Upper Alluvium Unit further in the overall Feasibility Study.

2. Why was the 1×10^{-6} level used in establishing several "Other Criteria" and "Treatment Goals to Meet ARARs" rather than a 1×10^{-5} or 1×10^{-4} level? Why were the "Treatment Goals to Exceed ARARs" for some chemicals fixed at one-half the MCLs rather than at other levels closer to the MCLs?

RESPONSE: ARARs and Other Criteria were established for the OUFS in accordance with "EPA Interim Guidance on Compliance With Other Applicable or Relevant and Appropriate Requirements" (52 FR 32496 et seq) and in conference between the City of Scottsdale and EPA Region IX Toxics and Waste Management Division Officials. For chemicals that have not been assigned Safe Drinking Water Act Maximum Contaminant Levels MCLs), it is EPA's policy to set cleanup levels (for potable end use) such that the total additive excess lifetime cancer risk of all chemicals present in the treated water fall within the range of 10^{-4} to 10^{-7}. As a general matter, EPA recommends consideration of a risk level of 10^{-6}, since this level is effective in protecting human health and the environment and can be reasonably implemented.

The National Contingency Plan (NCP) requires the evaluation of alternative remedial actions that will achieve and exceed ARARs. EPA has not established guidelines for quantitatively determining cleanup levels that "exceed ARARs." However, the identified "Other Criteria" were chosen for carcinogens, and one-half of the MCLs were chosen for non-carcinogens as treated water levels which would illustrate the differences in cost-effectiveness for the treatment alternatives based on achieving a significantly higher public health risk reduction than would be achieved when "meeting ARARs." This is the intent of the dual-analyses provision of the NCP. It should be noted that analyses in Section 5 of the OUFS indicated that no practical differences in the design criteria, capital costs, and operating and maintenance costs occur between the two sets of treatment goals due to the nature of the treatment processes evaluated. Also, neither of the VOCs that had treatment goals set at one-half of the MCL were determined to be controlling constituents in the treatment analyses.

From Arizona Department of Environmental Quality

1. The 5 µg/l TCE contour surrounding the zone of ground water contamination is identified on Figure 6, Appendix A. Data defining the occurrence and concentrations of contaminants in some of the study area are incomplete

or lacking. What specific data in these areas were used to establish the 5 µg/l boundaries?

RESPONSE: All available ground water chemistry data were used to construct water quality data matrices, and the concentrations of TCE were contoured as accurately as possible using these data. The zone of contamination was defined and the model was constructed using the best available data. Although the extent of contamination is not, and may never be, precisely defined, the effectiveness of pumping and treatment of contaminated ground water can be evaluated using available data. Future work may provide data that would more accurately delineate the zone of contamination; however, those data are not available at this time. It is premature to draw a final conclusion regarding the extent of contamination, but it is not premature to make qualitative conclusions about the effectiveness of pumping as a ground water control for the OUFS.

2. Ground water inflow via leakage from the Upper Alluvium Unit was not included in the model recharge because it is not believed to be substantial relative to other recharge sources. It should be noted that contaminant movement from the Upper to the Middle and Lower Alluvium Units is believed to be the primary mechanism for the occurrence of deeper contamination. What data, calculations, and assumptions were used to determine the recharge volume of the Upper Alluvium Unit? How do these calculated volumes specifically compare to the other recharge sources?

RESPONSE: Results of recently completed fluid-movement investigations in the Indian Bend Wash area production water wells indicate that water from the Upper Alluvium Unit migrates to the Middle Alluvium Unit and Lower Alluvium Unit via existing wells which serve as conduits for ground water transport. Water from the Upper Alluvium Unit moves down the well casing to the underlying aquifer units where water moves into the lower part of the Middle Alluvium Unit and into the Lower Alluvium Unit through perforations at that level. Ground water is also believed to migrate from the Upper Alluvium Unit to the underlying units via movement in the annular space between the casing and the borehole wall. Leakage from the Upper Alluvium Unit is believed to be substantially less than migration via these methods. The volume of water contributed to the Middle Alluvium Unit via leakage from the Upper Alluvium Unit is believed to be small relative to underflow, and leakage was not considered for this modeling investigation. ADWR has conducted a detailed study of the water budget for the IBW area and has calculated recharge to the Middle Alluvium Unit via leakage. Because ADWR leakage values were based on an unreliable flow net analysis, a low level of confidence was assigned to the

ADWR values for leakage, and leakage was not used for the model. (See response to ADWR Comment No. 20.)

3. The TCE is assumed to be in a dissolved phase and was modeled as a nonreactive tracer. Should TCE more accurately be modeled as a nonreactive tracer with the appropriate retardation coefficient?

RESPONSE: TCE tends to adsorb onto organic carbon, and the migration of TCE in contaminated water is thereby retarded. A retardation coefficient could be used in the solute transport model to simulate this adsorption. The results would indicate zones of contamination of smaller areal extent than results obtained by assuming no retardation. VOC-affected ground water migrates fastest in the coarse gravel zones in which there is less organic carbon and retardation would not be expected to be substantial.

From Arizona Department of Water Resources

1. Paragraph 4 on page ES-5 seems unclear. Are P.2, P.3, and P.4 no more effective than P.0, or P.1?

RESPONSE: There is an error in this paragraph. Page ES-5, paragraph 4, sentence 2 should read: "Modeling results indicated that all of these other alternatives were significantly more effective in managing the affected ground water zone than pumping Alternative P.0 (no-action)."

2. On Table 3-1, injection should be addressed because it appears to be a viable ground water control for this area.

RESPONSE: Injection is not addressed because it is not compatible with the fundamental remedial action objective of potable end use for the City of Scottsdale.

3. The effects of Upper Alluvium Unit contamination and its impacts on this OUFS should be more fully addressed.

RESPONSE: Based on the best available data, the potential impacts of the Upper Alluvium Unit on the remedial action alternatives are thoroughly discussed and evaluated in Sections 4 and 5 of the OUFS. As additional data become available, they will be examined with respect to potential impacts on the selected partial remedy during final design and will be addressed in the overall FS for the IBW site.

4. Do the proposed pumping alternatives exclude the Upper Alluvium Unit?

RESPONSE: None of the extraction wells for VOC-affected ground water in Pumping Regimens P.1 through P.4 will pump

primarily Upper Alluvium Unit water. However, short-circuiting is occurring in some of the wells, and Upper Alluvium Unit water which migrates down the well, whether inside or outside of the casing, will be pumped. As stated in Sections 4 and 5 of the OUFS report, the potential impacts of this water have been accommodated in treatment facility analyses. The Upper Alluvium Unit will be addressed further in the overall FS for the IBW site.

5. Was the City of Scottsdale's CAP allotment and conservation measures called for in the Second Management Plan taken into account in the modeling of the various pumping regimens?

RESPONSE: Pumping regimen analyses are compatible with the demand projections of the City of Scottsdale's Water Resources Management Plan, June 1987. As stated in the Institutional Analysis portion of Section 5, Scottsdale has service area rights to pump the ground water within the limitations of its Active Management Area targeted per capita usage goals for the entire service area.

6. Regarding the Ground Water Management Act of 1980, the applicability of the Act is that it requires remedial actions to be consistent with the Act and are subject to management goals established by the AMA in which remedial actions are located. All of the alternatives of the remedial action are affected as they are under the jurisdiction of and require the approval of the Department of Water Resources.

RESPONSE: The Arizona Department of Water Resources, as well as Environment Quality, will be asked to concur with EPA's Record of Decision.

7. DWR is concerned with the justification and effect of constant head cells at most of the ground water model's boundaries, the effect of not inputting recharge into the model, the effect of not utilizing the Upper Alluvium Unit as a source of contaminants, and the effect of not knowing the western edge of the zones of contamination in the Middle and Lower Alluvium Units.

RESPONSE: No-flow cells are used to represent Camelback Mountain and Mummy Mountain, where the geologic formations are believed to have very low permeability. The remaining boundary cells are designated as constant head cells to simulate ground water underflow into the model area. The effect of constant head boundary cells is that drawdown will not occur within these cells. Because these boundaries are substantial distances from pumping centers used in the modeling operations, this approximation does not have a substantial effect on migration of the zone of contamination.

Recharge into the combined Middle and Lower Alluvium Units aquifer in the model area is believed to be small in relation to underflow into the model area. Analysis of water level hydrographs for the Upper, Middle, and Lower Alluvium Units indicates that recharge into the Upper Alluvium Unit has little effect on the pattern of ground water flow in the lower units, and recharge was not considered in the two-dimensional model.

The effect of not considering the Upper Alluvium Unit as a source of contamination in the model is that the contamination problem could continue for a longer period of time than if it were considered. To disregard the Upper Alluvium Unit as a source of contamination does not affect the areal extent of contamination in the combined Middle and Lower Alluvium Unit, but it may result in an underestimation of the length of time that contaminated ground water will occur in the aquifer system.

The zone of contamination was estimated for the model using the best available data. The feasibility of pumping and treatment of ground water was evaluated based on available data. If additional water quality data become available for the western part of the study area, the zone of contamination could be delineated more precisely, and pumping regimens might be refined to more effectively remove contamination. At this time there are no monitor wells or production water wells in the western part of the study area; therefore, precise definition of the western boundary of the zone of contamination is problematic. However, available data are adequate to conclude that pumping and treatment is a viable remedial action, and the requirements for the OUFS are met.

8. The number and complexities of the proposed remedial actions are limited and should be expanded to explore ways of minimizing cleanup time and enhancing containment.

RESPONSE: There are a number of potential scenarios for remedial action. The alternatives in the OUFS covered a broad spectrum while trying to identify reasonable actions that could be easily implemented.

The following comments were directed to specific sections of Appendix A--Ground Water Modeling:

9. Page 3, paragraph 2: The saturated thickness of the Upper Alluvium Unit reaches a maximum of 60 feet or more in the southern part of the model area.

RESPONSE: Comment noted.

10. Page 4, paragraph 1: Ground water flow directions are quite different than north and northwest in the central and north parts of the model area, where localized cones of depression exert influence.

RESPONSE: Ground water flow directions discussed in Appendix A are general flow directions for ground water in the alluvium units. This particular paragraph indicated the direction of ground water movement in the Middle Alluvium Unit in areas where water level measurements in monitor wells have been made.

11. Page 4, paragraph 2: The thickness of the Lower Alluvium Unit in the IBW area is probably greater than "200 to 600 feet." According to Oppenheimer and Summer (1980), total thickness of sediments below the Middle Alluvium Unit is on the order of 4,000 feet in the northeast part of the model area. Much of this thickness is composed of the Red Unit, but the thickness of the Lower Unit is really unknown in most of the study area.

RESPONSE: Thickness for the Lower Alluvium Unit given in the report was derived from analysis of drillers logs on file with ADWR.

12. Page 5, paragraph 2: It should be stated that the Lower Alluvium Unit is probably a much more important aquifer than the Red Unit in the south part of the Paradise Valley basin.

RESPONSE: Comment noted.

13. Page 7, paragraph 2: Under "model input," more data are needed to adequately evaluate the model. Can you please provide ADWR with the data matrices input into the model? Also, we would like copies of MODFLOW and MOC model runs in order to review the models' assumptions and limitations in an effective manner. Additionally, the uncertainty associated with most assumptions should be stated, and a range of possible values discussed.

RESPONSE: Errol L. Montgomery & Associates, the developer of the model and author of Appendix A to the OUFS, will continue to be available to discuss the ground water model in detail with representatives from ADWR.

14. Page 8, paragraph 1: Along the north, south, and east boundaries, constant head nodes are employed. Comparison of 1982 with 1988 water level measurements from wells located within one-half mile of those boundaries shows that, in the last 6 years, water levels have risen from 23 to 161 feet in the north, and have dropped 49 feet in the east. This suggests that the north and

east boundaries are not actually constant head areas, as the model assumes. Input of variable head boundaries would greatly affect the model's results, and the effect of such variation in heads should be explored during the sensitivity analysis process to see if the proposed remedial actions are affected.

RESPONSE: If sufficient data were available to accurately calculate flux along the boundary, then a head dependent prescribed flux boundary condition would be more accurate than a constant head boundary condition. However, data are limited and an algorithm for head dependent flux would be very approximate. The model boundaries are located at substantial distances from the zone of contamination (the area of concern for the modeling investigation) and do not substantially affect water levels in that area. Because of the location of the area of concern and the limited data available, the constant head boundary cells are believed to adequately approximate the hydrologic conditions and are suitable to evaluate the proposed partial remedy.

15. Page 8, paragraph 1: The use of constant head nodes at the western model boundary appears to be unjustified, unless transmissivity values are so low as to effectively simulate no-flow cells. Constant head cells may provide considerable underflow into the model area, and this underflow may not be actually occurring between Papago Buttes and Camelback Mountain, where depth to bedrock is probably less than 100 feet, and on the east side of the Papago Buttes. How much inflow is simulated along the western boundary? The effect of inappropriately large inflow values from the west (and north) may be to disallow contaminant transport to the west (and north). Migration of the contaminant zone along its western and northern margin in all pumping scenarios is minimal, even in contaminated areas inside or adjacent to cones of depression of extraction wells. Historically the zone of contamination has most likely migrated a considerable distance to the west and north, a situation not simulated by model results. The lack of contaminant migration along the western margin of the zone of contamination may be an effect of assuming unrealistically high ground water inflow values from the western boundary.

RESPONSE: The hydraulic head west of Papago Buttes, Camelback, and Mummy Mountains is substantially higher than the hydraulic head in the Paradise Valley basin. The steep hydraulic gradient and the coarse-grained lithology of the sediments allow large amounts of ground water to enter the Paradise Valley basin as underflow, even though saturated thickness between Papago Buttes and Camelback Mountain and between Camelback Mountain and Mummy Mountain may be relatively small.

16. Page 8, paragraph 2: Uncertainties of the flow net analysis should be stated (for example, the lack of detailed water levels and gradients, unknown leakage from the Upper Alluvium Unit, and unknown recharge from land surface to the Middle Alluvium Unit where the Upper unit is not saturated).

RESPONSE: Comment noted.

17. Page 8, paragraph 3: Could you provide a reference for the reported values of storage coefficient?

RESPONSE: Several references are given at the end of Appendix A. In addition to references cited in the report, studies by the U.S. Geological Survey and Arizona Department of Water Resources, which include data for the Indian Bend Wash area, were used to provide estimates for storage coefficient.

18. Page 9, paragraph 9: How sensitive is the model to the assumption that the Lower Alluvium Unit maintains a constant thickness?

RESPONSE: Pumping is the most sensitive stress on the ground water system. In the Lower Alluvium Unit, the altitude of the bottom of the perforations is substantially higher than the base of the Lower Alluvium Unit. Therefore, the sensitivity of the model to the thickness of the Lower Alluvium Unit is small. In effect, to estimate the thickness of th Lower Alluvium Unit is to estimate the transmissivity, so the sensitivity of the thickness of the Lower Alluvium Unit is less than the sensitivity of transmissivity.

19. Page 9, paragraph 1: Ground water recharge is usually considered to be a separate component from ground water underflow. Ground water recharge is here defined as deep percolation from the land surface to the aquifer, which is a different form of inflow than ground water underflow. A separate section on ground water recharge (as here defined) should be included in the report for completeness.

RESPONSE: For purposes of the modeling investigation, which deals only with the Middle and Lower Alluvium Units, ground water recharge is considered to be negligible.

20. Page 10, paragraph 1: In the ADWR IBW water budget memo dated 9/9/87, ground water recharge via leakage from the Upper Alluvium Unit and via direct recharge into the Middle Alluvium Unit was estimated to be equal to about 150 percent of total pumpage and about 200 percent of ground water underflow. Not taking recharge into the Middle Alluvium Unit into account is a limiting assumption of the model and should be discussed more fully.

RESPONSE: Additional evaluation of the estimates of underflow and recharge in the ADWR water budget is required. The ADWR flownet shows converging streamlines which imply infinite transmissivity. The Operable Unit model assumes that recharge is small relative to underflow, and therefore, recharge is disregarded in the two-dimensional model, although additional discussions with ADWR concerning this analysis are warranted.

21. Page 11, paragraph 2: Better water level data now available indicate head differences between composite wells and Middle Alluvium Unit-only or Lower Alluvium Unit-only wells range from as low as 10 feet where little pumping occurs to as much as 70 feet in areas where heavy pumping occurs.

RESPONSE: Comment noted.

22. Page 12, paragraph 1: Effective porosity is reported to be 25 percent, but on page 8 the specific yield is reported to be 10 percent. Which value was used in the model? This is particularly important because the model is reported to be sensitive to variations in effective porosity (page 13).

RESPONSE: Effective porosity was used for MOC, and specific yield was used for MODFLOW.

23. Page 12, paragraph 2: Can you please provide a reference for the reported values of dispersivity?

RESPONSE: Appropriate references can be found in: Hargis & Montgomery, 1982. Digital Simulation of Contaminant Transport in the Regional Aquifer System, U.S. Air Force Plant No. 44, Tucson, Arizona; Interim Report, October 11, 1982.

24. Page 12, paragraph 3: How sensitive is the model to variations in initial TCE concentration, particularly along the western margin of the zone of contamination which is basically undefined? Given the lack of TCE data in the west, what would be the effect of a "worst-case" scenario of contaminated ground water extending to the western boundary?

RESPONSE: If contaminated ground water extended to the western boundary of the model area, projections for the areal extent of contamination for the different pumping regimens would be larger. If water quality data become available to document this hypothetical zone of contamination, a new pumping regimen could be investigated to more effectively remove the contaminated ground water from the west.

SUMMARY OF PUBLIC COMMENTS AT
MAY 5, 1988 COMMUNITY MEETING
ON INDIAN BEND WASH SUPERFUND SITE

From Pamela Swift, Toxic Waste Investigative Group

1. EPA should study health impacts of past exposure to contaminated drinking water.

RESPONSE: It is the responsibility of the Agency for Toxic Substance and Disease Registry (ATSDR) to conduct a health assessment at each Superfund site.

2. EPA should put more effort into cost recovery.

RESPONSE: EPA will pursue cost recovery actions at Superfund sites in an appropriate manner.

3. DEQ should set up air toxics standards before the air stripper is built.

RESPONSE: No EPA comment.

4. City of Scottsdale should become more involved in this process--Mayor Drinkwater should hold a meeting with citizens.

RESPONSE: No EPA comment.

5. City of Scottsdale should consider impacts on EPA's projects when planning and zoning large projects that will need large amounts of water.

RESPONSE: No EPA comment.

From Carolina Butler, Scottsdale Resident

1. EPA should look at cancer rates among 40- to 50-year-old women who lived in the Indian Bend Wash area. Government should focus more on health problems.

RESPONSE: See No. 1 from above.

APPENDIX B

Ground Water Monitoring Program

The Ground Water Monitoring Program described in Section VII.B.I. shall consist of the components as described below in the four Parts of this Appendix.

A. Installation of New Monitoring Wells

The Participating Group has installed and shall operate and maintain 12 new Middle Alluvial Unit (MAU) monitoring wells and 11 new Lower Alluvial Unit (LAU) monitoring wells at the approximate locations shown in the figure attached as Attachment 1 to this Appendix. The LAU monitor wells were screened in approximately the top 50 feet of the LAU. The completion depth and screened interval for MAU wells conforms to the completion depth and screened interval for the MAU wells previously in place.

The Participating Group has installed dedicated pumps for obtaining water quality samples. After completing construction, development and post-installation pump tests of each well, two rounds of water quality samples ("post-completion samples") were collected at two week intervals and analyzed using EPA Method No. 624/8240 for volatile organic compounds (VOCs), EPA Method No. 625/8270 for base/neutral and acid extractable organics and EPA approved methods for common ions and trace metals. Each round of sampling also included measuring the ground water elevation. The post-completion sampling and water

quality analyses are considered part of the installation of the wells.

On November 29, 1990, SRP submitted a Monitoring Well Installation Summary Report for all wells installed and completed by September 1, 1990. This report includes well construction details, well diagrams (including indications of screened intervals), lithologic logs, geophysical logs, pump test data and QA/QC documentation from post-completion sampling and a map indicating the final well locations. In February, 1991, SRP submitted a Monitoring Well Installation Summary Report for the remainder of the 23 new monitoring wells required under this program.

B. Ground Water Data Collection

The Participating Group shall obtain ground water elevations and collect ground water samples for water quality analyses from all new monitoring wells installed pursuant to Part A above and at the following existing monitoring and production wells:

COS 71	B-MA-1	E-10MA	M-7MA	M-16MA	M-9LA
COS 72	E-1MA	M-1MA	M-9MA	S-1MA	M-10LA
COS 73	E-5MA	M-2MA	M-10MA	S-2MA	M-14LA
COS 75	E-8MA	M-3MA	M-11MA	E-1LA	M-16LA
COS 76		M-4MA	M-12MA	E-7LA	S-1LA
COS 31		M-5MA	M-14MA	M-2LA	S-2LA
COS 6		M-6MA	M-15MA	M-5LA	

Water quality analyses shall include EPA Methods 601 and 602 or, at the Participating Group's option, EPA Method 502.2 for volatiles and semi-volatiles and, for samples from the production

wells, EPA-approved methods for common ions and trace metals. The Participating Group shall coordinate with the City in obtaining elevations and samples from City production wells.

In addition, the Participating Group shall obtain ground water elevations from existing UAU monitor wells E-3UA, E-4UA, and M-12UA during Phases A and B of the Ground Water Monitoring Program as described in Section VIII.B.

The Participating Group shall perform monitoring in three phases as described in Section VIII.B. The monitoring well sampling frequency schedules and analytical requirements for each of the phases are presented in Attachment 2 of this Appendix. Monitoring activities (including water level measurements) required during a given monitoring period shall be initiated during the first full week of the monitoring period.

The monitoring report for a given monitoring period shall be submitted to EPA within 15 days after the end of the monitoring period. The information to be included in the monitoring report and the report submittal schedules are presented in Attachment 3 of this Appendix.

C. Pumping Data Collection

The Participating Companies shall identify all production wells with capacities above 35 gpm that could have an effect on the movement of ground water within the Zone of Ground Water Contamination. The Participating Companies shall determine the current means of measuring flow for each of the identified

wells, and shall determine, based upon reasonably available data, the frequency and accuracy of current flow measurements. On August 1, 1990, the Participating Companies submitted to EPA a report, based on reasonably available data, on the production wells that included:

(a) A map showing the production wells identified, with their appropriate well identification designation.

(b) A table summarizing well identifiers, well construction details (including perforated interval), well usage (including discharge point), current flow measurement apparatus and current frequency of flow measurement.

(c) A proposal of a system (including equipment or other means) for accurately measuring or calculating flow from those wells for which the current means of measuring flow is inaccurate or inadequate.

The Participating Companies have equipped the Ground Water Extraction System wells with an accurate flow measurement system as approved by EPA.

The Participating Companies shall compile pumpage data from the production wells identified as described above according to the following schedule:

1. By the 20th day of each quarter during Phases A and B

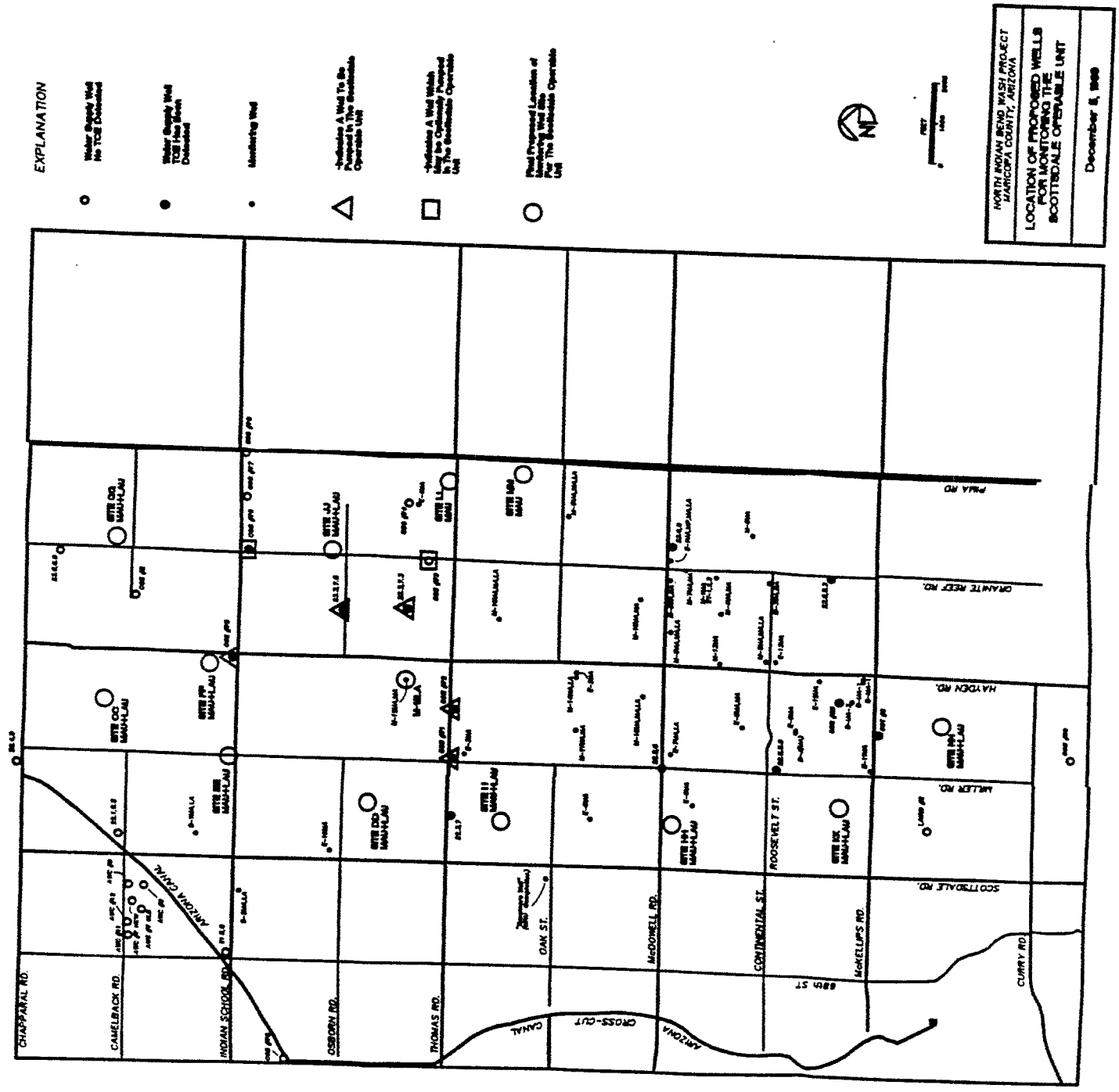
2. By April 30th of each year during Phase C commencing with the second year of Phase C Pumping data shall be included in the monitoring reports in accordance with Attachment 3. The City shall be under no obligation to provide to the Participating Companies the information required in this Section on its wells if the information is not readily available in City records.

D. Compilation of Salt River Flow Data

The Participating Companies shall compile data including all releases and inflows into the Salt River between Granite Reef Dam and the mouth of the Indian Bend Wash. The Participating Companies are not required to install any surface water flow measurement devices in connection with this requirement. Salt River flow data shall be compiled and included in monitoring reports consistent with the schedules for the well pumpage data.

ATTACHMENT 1

MONITORING WELL LOCATIONS



ATTACHMENT 2

MONITORING WELL SAMPLING FREQUENCY
AND ANALYTICAL REQUIREMENTS

1. Phase A Monitoring

A. City of Scottsdale Wells No. 71, 72, 73, 75, 76, 31, 6

1. Water level measurements and samples for volatile organic compound analyses shall be collected quarterly.

2. Samples for common ion and trace metal analyses shall be collected annually.

B. Existing MAU and LAU Monitor Wells

1. Water level measurements shall be collected monthly.

2. Samples for volatile organic compound analyses shall be collected semi-annually.

C. Existing UAU Monitoring Wells

Water level measurements shall be collected quarterly.

D. Newly Installed Monitor Wells

1. Water Level Measurements shall be collected monthly.

2. Samples for volatile organic compound analyses shall be collected quarterly.

2. Phase B Monitoring

A. City of Scottsdale Wells No. 71, 72, 73, 75, 76, 31, 6

1. Water level measurements shall be collected bi-monthly.

2. Samples for volatile organic compound analyses shall be collected semi-annually.

3. Samples for common ion and trace metal analyses shall be collected annually.

B. Existing MAU and LAU Monitor Wells

1. Water level measurements shall be collected monthly.

2. Samples for volatile organic compound analyses shall be collected quarterly.

C. Existing UAU Monitoring Wells

Water level measurements shall be collected bi-monthly.

D. Newly Installed Monitor Wells

1. Water Level Measurements shall be collected monthly.

2. Samples for volatile organic compound analyses shall be collected quarterly.

3. Phase C Monitoring

A. City of Scottsdale Wells Nos. 71, 72, 73, 75, 76, 31, 6

1. Water level measurements shall be collected bi-monthly.

2. Samples for volatile organic compound analyses shall be collected semi-annually.

3. Samples for common ion and tract metal analyses shall be collected annually.

B. Existing MAU and LAU Monitor Wells

1. Water level measurements shall be collected bi-monthly.

2. Samples for volatile organic compound analyses shall be collected annually.

C. Newly Installed Monitor Wells

1. Water Level Measurements shall be collected bi-monthly.

2. Samples for volatile organic compound analyses shall be collected annually.

ATTACHMENT 3

FREQUENCY OF SUBMITTAL OF MONITORING REPORTS

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
INFORMATION TO TO BE INCLUDED												
WATER LEVEL DATA												
TABULATED WATER LEVEL DATA	A,B	A,B	A,B,C	A,B	A,B	A,B,C	A,B	A,B	A,B,C	A,B	A,B	A,B,C
WATER LEVEL CONTOUR MAPS (MAU & LAU)	A,B	A,B	A,B,C	A,B	A,B	A,B,C	A,B	A,B	A,B,C	A,B	A,B	A,B,C
WATER LEVEL CHANGE MAPS (MAU & LAU)			B			B			B			B,C
WATER LEVEL HYDROGRAPHS FOR ALL MONITOR WELLS			A,B,C			A,B,C			A,B,C			A,B,C
WATER QUALITY DATA												
TABULATED WATER QUALITY DATA			A,B,C			A,B			A,B,C			A,B
LAB REPORTS AND QA/QC DATA			A,B,C			A,B			A,B,C			A,B

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
VOC TIME SERIES FOR MONITOR WELLS						A,B						A,B,C
PUMPAGE DATA												
TABULATED PUMPAGE DATA FOR ALL PRODUCTION WELLS						A,B						A,B,C
PUMPAGE TIME SERIES FOR ALL PRODUCTION WELLS						A,B						A,B,C
SALT RIVER FLOW DATA AT INDIAN BEN WASH						B						B,C

A = Monitoring Program Phase A
B = Monitoring Program Phase B
C = Monitoring Program Phase C

APPENDIX C

Calculation of 90 Day Time-Weighted Average Generation

For purposes of this Consent Decree, a given sample of treated water from the Plant shall be considered representative of treated water from the Plant from the time the given sample is taken until the time at which the next sample is taken; provided, however, a given sample of treated water shall only be considered representative for time during which the Plant is operating. Therefore, for any time that the Plant does not operate, those days do not have a representative sample, nor are those days considered part of the total number of days in any 90 day average.

For each of the compounds listed in Table VII-2 of the ROD, the City shall compute the time-weighted average concentrations in treated water from the Plant. The City shall compute the initial time-weighted average concentrations on the 10th day of the fourth full calendar month after the Start-up Period and on a quarterly basis thereafter.

The time-weighted average concentrations in treated water from the Plant shall be computed using the following equation:

$$[\text{Cmpd.}]_{90} = \frac{\sum_{i=1}^{n} ([\text{Cmpd.}]_i \times t_i)}{90}$$

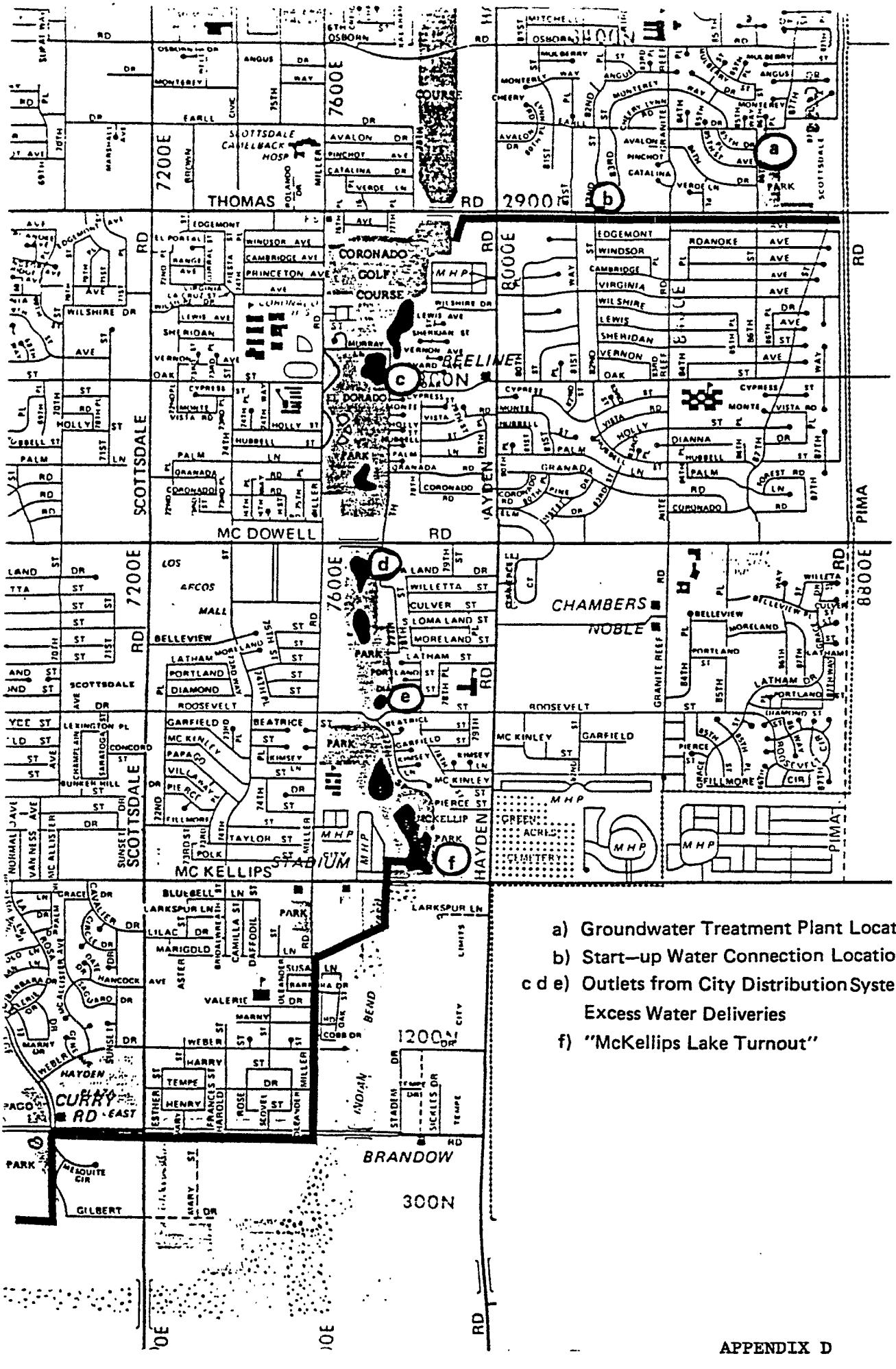
where: $[\text{Cmpd.}]_{90}$ = the average concentration of the given compound in treated water for the previous 90 days of Plant operation

$[Cmpd.]_i$ = the concentration of the given compound resulting from analysis of the i^{th} treated water sample taken during the 90 days of operation

t_i = the time period, in days, for which the i^{th} sample is considered representative of treated water from the Plant

n = the total number of treated water samples taken and analyzed during the 90 days of operation

The 90 day average is for the previous 90 days on which the Plant was operating, regardless of how far back on the calendar this goes. An analysis that indicates a non-detectable concentration for a compound shall be incorporated into the time-weighted average for that compound at a concentration of 1/2 of the detection limit for that compound for the analysis performed.



a) Groundwater Treatment Plant Location

b) Start–up Water Connection Location

c d e) Outlets from City Distribution System for Excess Water Deliveries

f) "McKellips Lake Turnout"

BARRY M. HARTMAN
Acting Assistant Attorney General
LESLIE ALLEN
Environmental Enforcement Section
Environment and Natural Resources Division
United States Department of Justice
P.O. Box 7611
Washington, D.C. 20044-7611
Telephone: (202) 514-4114

LINDA A. AKERS
United States Attorney
JAMES LOSS
Assistant United States Attorney
4000 United States Courthouse
230 North First Avenue
Phoenix, Arizona 85025
Telephone: (602) 261-3011

Attorneys for the United States

GRANT WOODS
Arizona Attorney General
LINDA J. POLLOCK, Assistant Attorney General
Office of Attorney General, Civil Division

BARBARA A. MARKHAM
Chief Counsel
HOWARD R. KOPP, Deputy Counsel
Legal Division, Arizona Department of Water Resources

Attorneys for the State of Arizona

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF ARIZONA

UNITED STATES OF AMERICA, ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY, AND ARIZONA DEPARTMENT OF WATER RESOURCES, Plaintiffs, v. MOTOROLA INC., SIEMENS CORPORATION, THE SALT RIVER VALLEY WATER USERS' ASSOCIATION, and SMITHKLINE BEECHAM CORPORATION, Defendants,	CIVIL ACTION NO. CIV 91-1835 PHX SMM COMPLAINT FOR MONETARY AND INJUNCTIVE RELIEF PURSUANT TO 42 U.S.C. §§ 9606 AND 9607

COMPLAINT - 1 -

and)
)
CITY OF SCOTTSDALE,)
)
Rule 19 Party.)

Plaintiffs, the United States of America, for and at the request of the Administrator of the United States Environmental Protection Agency (EPA), the Arizona Department of Environmental Quality and the Arizona Department of Water Resources (State agencies) allege the following:

PRELIMINARY STATEMENT

1. Plaintiff, the United States of America, brings this civil action under Sections 106 and 107 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. §§ 9606 and 9607, for injunctive relief and the recovery of response costs incurred or to be incurred by the United States for oversight of response actions to be performed at the Indian Bend Wash Superfund Site in Scottsdale, Arizona. In addition, State agencies bring this action pursuant to Section 107 of CERCLA, 42 U.S.C. § 9607, for recovery of response costs incurred or to be incurred by the State agencies for oversight of response actions to be performed at the Indian Bend Wash Superfund Site and for recovery of other response costs incurred to date in connection with the Indian Bend Wash Superfund Site.

JURISDICTION AND VENUE

2. This Court has jurisdiction over this action

PRAYER FOR RELIEF

WHEREFORE, Plaintiffs pray that this Court:

1. Enjoin the Defendants, jointly and severally, to perform the remedy set forth in EPA's Record of Decision for the Scottsdale Ground Water Operable Unit;

2. Enter judgment against the Defendants, jointly and severally, for all response costs incurred by the State agencies in connection with the Site, plus interest, and all costs to be incurred by Arizona for the oversight of performance of the remedy set forth in EPA's Record of Decision for the Scottsdale Ground Water Operable Unit;

3. Enter judgment against the Defendants, jointly and severally, for all costs to be incurred by the United States for the oversight of performance of the remedy set forth in EPA's Record of Decision for the Scottsdale Ground Water Operable Unit; and

4. Grant such other and further relief as the Court deems appropriate.

Respectfully submitted,

BARRY M. HARTMAN
Acting Assistant Attorney General
Environment and Natural Resources Division

LESLIE ALLEN
Environmental Enforcement Section
U.S. Department of Justice
P.O. Box 7611
Washington, D.C. 2044-7611
(202) 514-4114

LINDA A. AKERS
United States Attorney

JAMES LOSS
Assistant United States Attorney
4000 United States Courthouse
230 North First Avenue
Phoenix, Arizona 85025
Telephone: (602) 261-3011

GRANT WOODS
Arizona Attorney General

LINDA J. POLLOCK
Assistant Attorney General
Office of Attorney General
Civil Division
1275 W. Washington
Phoenix, Arizona 86007
Telephone: (602) 542-1610

BARBARA A. MARKHAM
Chief Counsel

HOWARD R. KOPP
Deputy Counsel
Legal Division
Arizona Department of Water Resources
15 South 15th Avenue
Phoenix, Arizona 86007
Telephone: (602) 542-1529

OF COUNSEL:

ALLYN STERN
Assistant Regional Counsel
U.S. Environmental Protection Agency, Region 9
1235 Mission Street
San Francisco, CA 94103
(415) 556-5967

BENJAMIN LAMMIE
Attorney Advisor
U.S. Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

RICHARD B. STEWART
Assistant Attorney General
Environment and Natural Resources Division
LESLIE ALLEN
Environmental Enforcement Section
Environment and Natural Resources Division
United States Department of Justice
P.O. Box 7611
Ben Franklin Station
Washington, D.C. 20530
Telephone: (202) 514-4114

LINDA A. AKERS
United States Attorney
District of Arizona
JAMES P. LOSS
Chief, Civil Section
4000 U.S. Courthouse
230 N. First Avenue
Phoenix, Arizona 85025
Telephone: (602) 379-3011

Attorneys for Plaintiff United States of America

GRANT WOODS
Arizona Attorney General
LINDA J. POLLOCK
Assistant Attorney General
Office of Attorney General
Civil Division
1275 W. Washington
Phoenix, Arizona 85007
Telephone: (602) 542-1610

BARBARA A. MARKHAM
Chief Counsel
HOWARD R. KOPP
Deputy Counsel
Legal Division
Arizona Department of Water Resources
15 South 15th Avenue
Phoenix, Arizona 85007
Telephone: (602) 542-1529
Attorneys for the State of Arizona

BARRY M. HARTMAN
Acting Assistant Attorney General

LESLIE ALLEN
Environmental Enforcement Section
Environment and Natural Resources Division
United States Department of Justice
P.O. Box 7611
Washington, D.C. 20044-7611
Telephone: (202) 514-4114

LINDA A. AKERS
United States Attorney

JAMES LOSS
Assistant United States Attorney
4000 United States Courthouse
230 North First Avenue
Phoenix, Arizona 85025
Telephone: (602) 261-3011

Attorneys for the United States

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF ARIZONA

UNITED STATES OF AMERICA, ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY, and ARIZONA DEPARTMENT OF WATER RESOURCES, Plaintiffs, v. MOTOROLA INC., SIEMENS CORPORATION, THE SALT RIVER VALLEY WATER USERS' ASSOCIATION, and SMITHKLINE BEECHAM CORPORATION, Defendants, and CITY OF SCOTTSDALE, Rule 19 Party.	CIV-91-1835-PHX-WPC ~~[Proposed]~~ ORDER FOR ENTRY AND [redacted] OF LODGED CONSENT DECREE

ORDER FOR ENTRY OF
DECREE - 1 -

4/29

14

This Court has reviewed the proposed consent decree (including the modifications made to pages 61, 63, and 15, and agreed to by the Parties), the motion and supporting materials for entry of the decree, the comments and the United States' responses thereto, and any other materials submitted with respect to this matter. After consideration, this Court finds that the proposed consent decree is fair, reasonable, and consistent with the purposes of CERCLA.

The Court also notes that the complaint in this action names as Defendants those entities that the governments believe should be held liable under CERCLA for performing remedial actions. The complaint filed in this action does not seek to impose liability upon anyone except for the entities named as Defendants. Similarly, the Decree imposes no obligations on anyone other than the named Defendants to perform remedial actions at the Site, except that the City of Scottsdale is also named as a Rule 19 Party to this action and is required to perform certain prescribed remedial activities as set forth in the Decree.

THEREFORE, IT IS HEREBY ORDERED that the proposed Consent Decree, lodged with this Court on November 25, 1991, together with the proposed modifications attached hereto, is entered as an Order of this Court.

DATED THIS 23 DAY OF April, 1992.

e. A. Zervoke for

WILLIAM P. COPPLE
UNITED STATES DISTRICT JUDGE

Submitted by:

Leslie Allen

LESLIE ALLEN
Trial Attorney
Environmental Enforcement Section
Environment and Natural Resources Division
United States Department of Justice
P.O. Box 7611
Washington, D.C. 20044-7611
(202) 514-4114